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MONTHLY REPORT

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CONTENTS.

	PAGE
Agricultural Conditions at 1st October	2
The Markets during September	6
Hints to Grade B Milk Producers	7
Pasture Improvement	11
The Destruction of Rats	13
The Spahlinger Experiments	14
Results of Warble Experiments, 1935	17
New Crop Ryegrasses, 1935	18
Sheep Schemes	18
The Wheat Act, 1932	20
The Pigs Marketing Scheme (Northern Ireland), 1933:	
(1) Election of Members for Co.'s Fermanagh, Londonderry and Tyrone	23
(2) Standard Prices for October	25
The Breeding and Feeding of Pigs	28
The Milk and Milk Products Act, (Northern Ireland) 1934:	
Election of Members to Joint Milk Council	29
Milk Recording	30
The Cattle Industry (Emergency Provisions) Acts, 1934–35	30
Agricultural Improvement Unemployment Relief Scheme	31
Seasonal Farm Notes	32
Announcements and Reminders	37
Answers to Correspondents	38
Awards of Scholarships	41
The Training of Girls in Poultry-Keeping, Dairying, &c.	44
Forestry—Supply of Trees to Farmers at Reduced Prices	45
Winners of Awards in the 13th Egg-Laying Test at Stormont	45
Comparisons between Pullets at Stormont Laying Test, 1934–35	49
Fourteenth Egg-Laying Test at Stormont	51
Prices of Feeding Stuffs	52
The Ranges of Retail Prices of Phosphatic Manures in Northern Ireland	54
Shipments of Live Stock from Northern Ireland	55
Imports and Exports of Agricultural Products	56
Prices of Fat Stock	56
Prices of Live Stock at Fairs, September, 1935	57
Trade at fairs in September, 1935	58

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MINISTRY OF AGRICULTURE, NORTHERN IRELAND.

MONTHLY REPORT, OCTOBER, 1935.

AGRICULTURAL NOTES.

Now that the harvest work has been almost completed, farmers' attention will be directed towards such work as potato digging, but the improvement of pasture lands is also worthy of special attention at this season. An article dealing with the latter subject is published this month, and reference to the Ministry's Scheme for granting assistance for land improvement is also made in this issue. (Pages 11 and 31).

Since much of the trouble experienced by stock-raisers, particularly in the cases of maladies such as "hoose" and redwater in cattle and fluke and foot-rot in sheep, results from neglect at this season to adopt precautionary measures, readers are particularly advised to read and put into practice the hints given in this issue of Seasonal Farm Notes on these matters. In this connection it should be realised that neglected pastures are always a source of risk in regard to these ailments, and that accordingly pasture improvement is indirectly a means of preventing the appearance of such diseases amongst stock. Farmers will find in the long run that such measures are much cheaper than the remedies which have eventually to be taken to cure these ailments, should they appear.

Hints to Grade B milk producers are given prominence in an article on pages 7-10. The information is comprehensive and should remove any doubts that may still exist in producers' minds as to the essentials necessary in the production of Grade B milk of the standard required by the Regulations governing the Milk Scheme.

The report recently issued by the Ministry on the Spahlinger experiments is reviewed on page 14.

Timely advice as to the destruction of rats appears on page 13, whilst the results of experiments on the control of the warble fly pest are summarised in an article on page 17.

Some facts and figures relating to the working of the Wheat Act in Northern Ireland, and up-to-date information regarding other Schemes are given in the Report. It is desired to draw special attention to the notices on pages 23 and 29 of forthcoming elections of members to the Pigs Marketing Board and to the Joint Milk Council, respectively.

AGRICULTURAL CONDITIONS AT THE 1ST OCTOBER, 1935.

Rather broken weather was experienced throughout September. At the beginning of the month a short period of settled weather conditions followed the rough weather at the end of August, but, generally, conditions throughout the past month have been very unsettled. Much rain fell and for the latter half of the month high winds were much in evidence. The temperatures were, in the main, mild and seasonable, but on some days, particularly towards the close of September, colder weather prevailed and several sharp ground frosts occurred at night time. Despite the fact that there were many fine days when outdoor work was undertaken, the progress of the work entailed in saving the remainder of the corn crops and in the lifting of the potato crops was generally retarded by inclement weather.

Pastures are looking fresher after the rains, whilst the aftermaths also are reported to have improved. The general condition of grazing lands is, however, less satisfactory than usual this season on account of the exceptionally dry summer. Many pastures have a covering of withered grass.

Supplies of purchased foodstuffs remained plentiful, and whilst prices rose a little during the month as a result of some uneasiness in international markets, they eased again towards the end of September. There has been a tendency for farmers to hand-feed a larger number of cattle this season, partly on account of the shortage of grass, which is rather acute in some areas, but also in view of the attractions of the Beef Subsidy. It is reported, however, that latterly this has lessened to some extent following the recent decline in beef values.

Cattle and sheep have made a fair thrive during September, and apart from a few cases of "hoose" and "redwater" the general health is good.

THE CROPS.

WHEAT.—The bulk of the crop was stored in good condition. Threshing commenced during the month, but so far only a small proportion of the crop has been threshed. It is stated that some farmers are purposely delaying threshing on account of the low prices prevailing for wheat. Reports to date suggest that the yield will not be so good as last year, but nevertheless it is generally considered that it will be of average dimensions, whilst the quality of the grain is uniformly good.

OATS.—Practically the whole of the oat crop was saved in good condition, and the prospects of satisfactory yields are very bright. Threshing operations were carried out during the month, and although

good yields of grain are being obtained, the yields of straw seem to be generally below the average. Some late-harvested fields of oats suffered from weathering during September. Small supplies of this season's crop appeared on the markets early in the month, when prices were in the neighbourhood of 6/- per cwt. As supplies at markets increased, prices declined, and at the beginning of October they averaged 5/1½ per cwt. This figure compares with 5/5 per cwt. at the corresponding date of 1934, when larger supplies were marketed. On the other hand, straw prices were dearer than at the corresponding date of last year at 34/8 per ton.

BARLEY.—The barley crop was saved under good conditions, and while threshing is not as yet being carried out on a large scale, the results so far are very encouraging both in regard to yields of grain and straw.

FLAX.—The greater portion of the flax crop is in the stack, but in a few districts the crop is still in stooks in the fields. This year's flax appears to be of good bulk and the quality of the fibre is also considered to be satisfactory, although doubts have been expressed as to the quality in the cases of crops where retting operations were delayed consequent on the shortage of water during August. It appears that in a few districts the water shortage was still being felt in September and was stated to be the cause of delaying scutching operations, which have commenced only in a few areas. The results so far from scutching indicate good yields. At the opening flax market at Ballymoney on 2nd October prices for this season's crop ranged from 7/- to 8/- per stone of 14 lbs.

POTATOES.—The general absence of blight to any appreciable extent and the moister conditions of the past month were two important factors in the continued development of main crop varieties. In most areas the crops have grown out well and the prospects of fairly good yields are much better than were anticipated earlier in the season. Early ripening was reported to be a noticeable feature in many fields this season, whilst, on the other hand, it is stated that in a few districts the main crop varieties have remained green unusually long this year. Potato blight did not spread so rapidly as usual, and in the main the disease has so far been confined mostly to the haulms, but it remains to be seen whether the recent rough weather will cause the disease to spread to the tubers. The lifting of main crop varieties, which began earlier than usual this year, was hindered by the wet weather, and the low prices at present ruling for potatoes have, it is thought, influenced farmers in delaying this work. It is anticipated that the crop, on the whole, will be of fairly good dimensions and of good quality. There are many instances, however, where spraying was not carried out to schedule, was badly done, or entirely neglected, and, in such cases, the disease has made rapid inroads, and the returns from

these crops will be much smaller and, in so far as quality is concerned, much less satisfactory than would have been the case had the proper precautions been taken.

During the past month supplies of main crop varieties of potatoes marketed for local consumption were larger than in the corresponding month of 1934, and prices, which averaged 3/5 at the beginning of the month, recorded a gradual decline and at the beginning of October were slightly below those at the corresponding date of last year at 2/7 per cwt. Shipments of potatoes from Northern Ireland ports during September were on a larger scale than in August, and prices moved slightly downward during the month and for the week ended 5th October were as follows :—

	Bagged. Per ton.	Loose. Per ton.
Up-to-Date (Red Soil)	£2 0 0 to £2 5 0	£2 0 0
Up-to-Date (Grey Soil)	£1 15 0 to £2 5 0	£1 15 0 to £2 5 0
Arran Consul	£2 0 0 to £2 5 0	£2 0 0
Arran Victory	£1 15 0 to £2 5 0	£1 15 0
Kerr's Pink	£1 15 0 to £1 17 6	—

MANGELS.—The general appearance of this crop now gives promise of good yields. Lifting has not yet commenced.

TURNIPS.—Turnips made considerable progress and the crop may yet give good average results. Some fields are still in a backward state and in these the roots may be smaller than usual, whilst the ravages of crown rot may seriously affect the returns from this crop in the mid-Down area.

HAY.—There have been heavy crops of good quality upland and meadow hay saved in nearly all districts. Although accounts of the results of the threshing of the bulk of seeds hay vary to a fair extent, the general opinion seems to hold that the yields of seed will be fairly good this year. The quality of the seed is generally satisfactory. Upland hay was marketed in increasing quantities during the month and prices were dearer than in the corresponding month of last year at 51/- per ton. Meadow hay also recorded an increase in quantity during the month and values were steady at round about 35/- per ton. New crop meadow hay in September, 1934, averaged 33/6 per ton.

GRASS SEED.—The grass seed markets opened quietly and supplies did not reach any considerable dimensions until the third week of September. Prices so far have been disappointing, and for the week ended 5th October the following were the average prices at markets :— Italian, 10/8¾ per cwt. ; Perennial, 11/9 per cwt. ; Mixed, 9/- per cwt. The results of the germination tests of this year's seed are given on page 18.

LIVE STOCK.

CATTLE.—Store cattle are in fairly good condition. The hand feeding of forward stores is being carried out in some areas on a larger scale than usual for the purpose of obtaining the Beef Subsidy, but in general the stock continue to make a fair thrive on grass alone. Hoose is reported to be a common complaint amongst young stock in a few districts, but as a general rule the bill of health is clean. The position in regard to dairy stock is also fairly satisfactory. The herds are being maintained in normal condition for the season of the year, and although redwater and abortion have been reported from a few districts, the general health and calving were satisfactory. At fairs in Northern Ireland first class dairy stock were meeting with a good demand, whilst beef values at the Belfast Auction Marts and at fairs showed a gradual decline, as did also the values of store cattle at local centres throughout the country.

SHEEP.—Most flocks are in fair condition, and although foot rot is giving some trouble on a few farms the general health is satisfactory. Large supplies at fairs during the month met a moderately good trade at steady prices. Good breeding sheep and fat lambs were the chief attractions.

PIGS.—Large supplies of young pigs made a ready sale at firmer rates of from 22/- to 40/- each. A small number of sows on offer were a fair trade at about late rates. Supplies of pork showed a gradual increase on the month.

HORSES.—Horses remained in keen demand. Good young animals are making up to £50 each, whilst sound farm horses are selling at from £35 to £45 each. Second class quality working horses are obtainable from £15 to £30 each.

MILK.—The milk yield is reported to have shown a slight seasonal decrease, and prices paid by creameries were a little higher at from 3d. to 4¼d. per gallon, the separated milk being returned to the farmer.

The average price paid during the month of August, 1935, for all milk produced in Northern Ireland and delivered to creameries for manufacturing purposes was 3.70d. per gallon, and the Ministry has

made equalisation payments at 1.30d. per gallon in order to bring the average price in respect of that month to 5d. per gallon as provided by the Milk and Milk Products Act (Northern Ireland), 1934.

It should be noted that under the Regulations creameries are required to distribute the equalisation payments in accordance with the butter-fat content of the milk received from each supplier. Farmers should, therefore, bear in mind that the actual payments made to them, being calculated on a butter-fat basis, may be at a rate per gallon which may vary below or above the average figure herein notified.

THE MARKETS DURING SEPTEMBER.

With the exception of cabbage and leeks, supplies of the principal vegetables marketed last month were larger than in August. Greatly reduced supplies of cabbage were 1¾d. per dozen dearer at 1/10½ per dozen. Leeks were less plentiful and 1d. per bunch cheaper at 6d. per bunch, while supplies of parsley were slightly larger than in August and 2¾d. cheaper at 6¾d. per bunch. Increased supplies of carrots,, parsnips and garden turnips were marketed in Belfast during the month. Carrots were 1/- per cwt. cheaper at 7/- per cwt., and parsnips 2/2 cheaper at 5/5 per cwt., while garden turnips were 1/- cheaper at 1/10 per cwt. Considerably larger supplies of cauliflowers marketed at this centre during September were 5d. per dozen cheaper at 1/9 per dozen. Small supplies of savoys marketed during the month averaged 1/1½ per dozen.

Farmers' print and lump butter was less plentiful than in August and ¾d. per lb. dearer at 1/0½ and 10¼d. per lb., respectively. Supplies of hen eggs also decreased and the average price was 9½d. per lb., as compared with 8¾d. per lb. in the preceding month. Duck eggs were much less plentiful and 1/5 dearer at 10/10 per 120.

In the poultry markets, hens and chickens were not so numerous, but ducks were marketed in increased numbers. Hens were ¾d. dearer at 1/7 each, chickens were unchanged in value at 1/11 each, but ducks were 1d. cheaper at 1/8½ each.

Supplies of long unwashed wool and mountain unwashed wool were smaller than in August. Long unwashed wool was firm in value at 4¾d. per lb., but mountain unwashed wool was ¼d. dearer at 4¼d. per lb.

THE COST OF LIVING INDEX FIGURE.

The cost of living index figure at 1st September was 43, or the same as that for the previous month. The figure at 1st September, 1934, was also 43.

HINTS TO GRADE B MILK PRODUCERS.

Since the introduction of the Milk Marketing Scheme in Northern Ireland the attention of dairy farmers has been directed towards the need for improvement in the methods of milk production generally, in order to comply with the regulations regarding the quality of the milk. It has been the experience on certain farms, even although the byres, dairies and equipment are most satisfactory, that difficulties in keeping the milk up to the required standard have arisen. On investigation, it was found, in some cases at least, that the methods employed in the production and handling of the milk were faulty and showed that the workers did not appreciate fully the essentials required to obtain the best results. The object of this article is to emphasise these essentials, to indicate how possible troubles may be averted, and thus to assist Grade B producers to obtain consistently good results.

THE BYRE.—The walls, roof, and all internal fittings should be kept clean. Every endeavour should be made to keep down dust at milking time. Before milking, the manure should be removed and the litter pushed up towards the cow's fore feet. This operation can be performed without creating dust. The manure channel and gangway should be washed daily.

THE COWS.—The cows should be kept clean by regular grooming, using a dandy-brush and currycomb. When preparing the cows for milking, the use of two buckets of clean water is recommended. The flanks, tail and hind-quarters should first be brushed and wiped, using water from the first bucket until all visible dirt is removed. To facilitate these operations the hair of the flanks, tail (except the switch) and udder should be kept short by clipping with horse clippers at regular intervals of about 6 weeks. This preliminary cleansing should be followed by wiping the udder and adjoining portions of the flanks with a clean, white udder cloth about 1½ ft. square which is wrung from the second bucket of water. If the cloth does not remain white after use, the udder should be washed and wiped again. The water in the pails should be changed frequently and in no circumstances should one lot be used for more than 4 cows. The udder cloths should be washed and then sterilized with the other equipment in the sterilizer.

THE MILKERS.—The milkers should wear clean, washable overalls and caps. The use of a one-piece overall with a gusset part to accommodate the milking pail is recommended. Milkers should wash their hands thoroughly before milking and should again rinse them after each cow is milked. A wash basin and a clean towel should be provided in a convenient place. The use of galvanized iron milking stools is strongly recommended. These can easily be cleansed and sterilized with the other equipment and are not so liable to contaminate the milker's hands as wooden stools.

MILKING.—Milk obtained in the first two or three streams from each teat is usually contaminated and should be rejected. This milk must not, however, be milked on to the floor, but into an old pail or "fore-milk can." The provision of a special can for the purpose is worth consideration, as specks of curd can readily be observed on the false lid of such a can, and thus udder trouble may be detected in its early stages. Cows suffering from udder trouble should invariably be milked last, and in all cases milk from infected quarters should be excluded from the bulk milk for sale.

The use of milking pails of the hooded type is recommended. One-piece, heavily-tinned pails with rounded corners and free from seams have been found to be very satisfactory. With this type of pail the possibility of dust, hair, scurf, etc., gaining access to the milk is reduced to the minimum; besides, restless animals cannot so easily trample in the pail as in the case of an open-mouthed pail.

Milking with dry hands should ever and always be practised. Wet milking is one of the commonest causes of failure on the part of the dairyman to produce milk of a satisfactory standard of quality, and all producers are earnestly advised to insist that their employees observe this practice.

The milk from each cow should be removed to the dairy as soon as the cow is milked, and poured through a sterile filter into a sterile receiver. A strainer having a reasonably large straining surface should be used so that straining may be carried out quickly. A fresh cotton-wool pad of the size of the straining area should be fitted before the strainer is sterilized. If milking is carried out properly, the pad in the strainer will remain perfectly clean. If milk recording is practised, the vessel used for weighing the milk should also be sterilized with the other equipment.

Where bottling is carried out, and indeed in all cases, the milk from a number of cows should be added to the receiver before cooling commences so as to ensure thorough mixing and a uniform butter-fat content in the bulk milk.

COOLING.—Before commencing the cooling operation, the water should be turned on through the cooler, care being taken to ensure that the fittings are tight and that an air-lock does not occur in the cooler. This can always be prevented by opening the small drain tap until the water flows freely. The flow of milk should be regulated until the best cooling results are obtained. With efficient working it should be possible to cool the milk to within a few degrees of the temperature of the cooling water. The efficiency of the cooling may be ascertained by comparing the temperature of the water coming from the outlet pipe of the cooler with that of the cooled milk. Spring water is essential for the best results. Approximately five gallons of water are required

to cool one gallon of milk. To cool milk to 60° Fahrenheit in summer requires a plentiful supply of cold spring water.

If cooling water cannot be pumped during the cooling operation it should be pumped into the cistern immediately before cooling takes place. On no account should the water cistern be allowed to remain full overnight, especially in warm weather, as the temperature of the water will vary according to climatic conditions, and during hot weather, water stored in this manner will be useless for cooling purposes. The source of the water supply should be kept clean and well protected from contamination.

Where it is the intention to fill more than one churn from the cooler at a milking, an equalising tray may be fitted to the cooler which will give an even distribution of milk to the requisite number of churns.

Care of Utensils.—All utensils used in connection with the handling of the milk should be properly cleansed and sterilized after each milking. The correct cleansing consists of three operations :

(1) Washing in cold water immediately after use to remove all milk, and not after the milk has been allowed to dry on the metal.

(2) A thorough scrubbing in warm water containing a little washing soda, which will remove the milk fat. The use of a stiff-bristled dairy brush is preferable to cloths for this purpose.

(3) Rinsing in clean water, which may be either hot or cold.

An important point to remember in washing utensils is the care which is necessary in dismantling and cleaning inaccessible portions of the equipment, such as the valves of the bottle-filling attachment, and the extension pipe to the receiving pan. Special brushes can be obtained for cleaning these units, and extra care should be given to their cleansing.

Sterilization of Equipment.—After washing, all the utensils should be sterilized by steam. The sterilizing chest should be provided with a reliable thermometer and the temperature kept at 210° Fahrenheit for at least 20 minutes to ensure effective sterilization. Steam should be turned on slowly and the contents of the chest brought gradually up to the required temperature. On shutting off the steam, the door of the chest should be opened slightly for a few minutes to allow excess steam to escape, and then closed again. The heat of the utensils should then be sufficient to dry off any moisture which may have condensed on them. After sterilization, the utensils should be left

undisturbed in the chest until next required, when the various units should be assembled with the least possible handling of the parts with which the milk will come in contact.

Where churns are used they should, if possible, be sterilized in the chest with the other utensils after having been washed. Where a steaming stool is used for sterilizing churns, the steam should be turned into the churn for at least three minutes where a pressure boiler is in use. Where low pressure outfits are used, steaming should continue for at least five minutes. The churn afterwards should be stored mouth downwards on a sparred shelf in the dairy. The lids of the churns can be sterilized in the sterilizing chest.

Things to Remember and Practise :

(1) Reject first streams of milk from each teat.
(2) Milk with dry hands.
(3) Never strain milk in a byre or outside a byre door. Straining is best carried out direct into the receiving pan of the cooler.
(4) Do not use a cloth strainer, but a modern type of strainer capable of being fitted with sterile cotton wool pads.
(5) Do not run milk over the cooler too quickly.
(6) Use a dairy thermometer to check cooling temperatures.
(7) Obtain a good clean cold supply of spring water for cooling and wash-up purposes.
(8) Pump the cooling water into the cistern immediately before cooling or during the cooling process. Do not allow the water cistern to remain full overnight.
(9) Sterilize utensils after each milking ; once per day is not sufficient.
(10) Wash and sterilize delivery churns on arrival back at the farm, even although they may have received attention at the distributor's premises.
(11) Keep all utensils in the sterilizing chest until required for use.
(12) Do not on any account rinse utensils after sterilization. They are perfectly clean and ready for use.
(13) During warm weather keep milk in a cool place before despatch.
(14) Use covered pails and galvanized iron stools.
(15) Sterilize all udder cloths.
(16) Use overalls during milking.
(17) Give special attention to the cleaning of the valves of the bottle filler.

PASTURE IMPROVEMENT.

The importance of pasture to Northern Ireland agriculture will be realised when it is considered that out of a total area of approximately 3½ million acres, there are over 2 million acres under grass of one kind and another. In the production of live stock, for which the province is famous, grass plays an important part, so much so that it may be regarded as one of the staple crops and the cheapest food on the farm. Moreover, the climatic conditions which prevail in Northern Ireland are such that they favour the production of abundant pasture over an extended grazing period. In spite of the natural advantages which these conditions bestow, there are many farms on which the pasture could be considerably improved, resulting in greater stock carrying capacity and the lowering of production costs.

Many of the pastures have deteriorated in stock-carrying capacity through being allowed, once established, to look after themselves. This is a fallacy which requires little consideration to dispel. Pasture is a crop and requires attention in the way of drainage, mechanical treatment and manuring, if it is to be maintained in a high state of fertility.

Whilst the importance of good drainage in arable land is generally realised, there is much grassland, particularly areas under permanent pasture, where the drainage leaves much to be desired. Water-logged soils produce herbage of a poor quality, and are, in addition, often associated with diseases such as "fluke," "hoose," and red water. Undoubtedly the systematic underground drainage of such land is often an expensive undertaking, but much improvement can be effected by the clearing out of ditches and the maintaining of drain outfalls in an open state so that the drainage water may run away freely. On marshy land considerable improvement will also result from the cutting of open drains about 5 yards apart. This work can be conveniently carried out in early winter during slack periods.

A practice which is now being carried out by many farmers with good results is the mechanical treatment or the cultivation of pastures. On a number of pastures which have been grazed for a few years it is often found that a thick mat of old grass and fog has accumulated on the surface of the soil. When this condition exists, air and water cannot reach the plant roots freely, whilst the action of manures is retarded. It is, therefore, essential that this mat be thoroughly torn up if improvement in the quality of the pasture is to be effected. Disc harrows and freshly sharpened, straight-tined, zig-zag harrows may be employed for this purpose with very satisfactory results. The harrowing must, however, be done thoroughly so that the turf is cut up in lengthwise and crosswise directions. There are also several types of grass harrows, designed especially for this work, now on the market which have proved very satisfactory.

The continual grazing of pastures with young growing stock and dairy cows removes considerable quantities of phosphates for the growth of bone and the production of milk, respectively. It will be realised, therefore, that if this process of the removal of phosphates from the soil continues, without replacement, the pasture must deteriorate in quality and, consequently, in stock-carrying capacity. It is evident, therefore, that the application of a phosphatic manure in some form or other is essential for the improvement and maintenance of the fertility of grassland. Phosphatic manures stimulate the growth of good grasses and clovers, particularly wild white clover, which is an essential constituent of first class pastures.

Basic Slag, Gafsa Phosphate and Semsol are the chief phosphatic manures used in the improvement of grassland. Basic Slag and Gafsa generally give very good results on all soils except those which are very light and dry or deficient in organic matter. Semsol is very suitable for medium or light soils. The phosphate present in Basic Slag and Gafsa is slow acting and not available as a plant food until some time after application. Accordingly, these manures should be applied early, before Christmas if possible, but not later than the end of January if results are to be obtained in the following year's grazing. There is no risk of the phosphates being washed down into the soil and out of reach of the plant roots, as they are well retained in the upper layers of the soil until they are utilised by the plants. Semsol is quicker in its action, and may be applied either in the autumn or early spring.

Where the pasture is in need of cultivation, this work should be carried out before the manures are applied. A calm day should be selected for sowing the manure and an application at the rate of from 4 to 6 cwt. per statute acre of any of the manures mentioned is suitable. This dressing is generally sufficient for a period of from 4 to 5 years. On all but the heavier classes of soils, 1 cwt. 30 per cent potash salts per statute acre, in addition to the phosphatic manure, gives beneficial results and will well repay the extra cost. Potash improves the quality of the pasture and encourages stock to graze closely.

This dressing of manures is also recommended for application to young "seeds," whether for seed saving purposes or for mowing.

As will be seen from page 54 of this report, phosphatic manures are offered at reduced rates this season. Every farmer is, accordingly, strongly advised to take advantage of the lowered prices and manure a portion, if not all, of the pasture land on the farm. Money spent on manures for improvement of grassland will give a much greater return in the production of natural food for stock than a similar amount expended in the purchase of feeding stuffs. Moreover, to achieve success in the production of live stock, it is essential to maintain the fertility of grazing lands at a high level.

THE DESTRUCTION OF RATS.

Rats are responsible for far more damage and loss than most people realise. Apart from the large quantity of food which they either consume or destroy, much damage is done to buildings, floors, sacks and all kinds of woodwork by their gnawing holes and passage ways. It is also known that rats are responsible for the spread of certain diseases among animals and even among human beings. It is therefore highly desirable, both from an economic and a sanitary point of view, that a determined effort should be made to exterminate these pests.

As it is at this time of year that rats take up their winter quarters in farm buildings, a few notes on methods of controlling the ravages of these pests may be opportune.

Preventive Measures.—On the farm the adoption of preventive measures to discourage the presence and prolific breeding of rats can be adopted with effective results. Of these, the most important are:

(1) The rendering of buildings and outhouses rat-proof as far as possible by the provision of concrete floors, or floors laid directly in concrete. Wooden poultry houses should be protected by raising them off the ground on concrete or brick blocks and by fitting fine mesh wire netting around the outside bottom edges of the houses so that it extends to about 8 inches into the ground. Burrows under floors or in walls from which rats have been driven should be filled with concrete or a mixture of cement, sand and broken glass.

(2) The building of stacks of grain on elevated stands about 2 ft. 6 inches high to prevent rats from having easy access to them.

(3) The disposal of waste food so that it is not available for rats. This is a point to which great attention should be paid, as food left lying about in farm buildings, yards, etc., is one of the principal attractions to rats. It should be realised that the existence of rats is strictly dependent on the food which they are able to obtain, and they will not remain or increase in places where food is not easily procured. In this connection the use of metal bins for the storage of feeding stuffs is advocated, but where wooden receptacles are already in use these can be rendered inaccessible to rats by covering the angles with light tin sheeting and the bottom with wire netting of ½ inch mesh.

Remedial Measures.—Of the various methods employed for the destruction of rats, the use of poisoned baits is perhaps the most convenient. Various proprietary poisons can be obtained and many of these give very satisfactory results. A cheap and efficient poison bait can be made up by mixing together equal parts of Barium Carbonate and dripping. If desired, a more attractive bait for the rats can be made up with Barium Carbonate as the poisonous principle, using the following formula:

6 ounces Barium Carbonate,
4 ounces dripping,
1½ ounces salt,
16 ounces oatmeal.

The dripping should be melted in a tin, the requisite amounts of the various ingredients added, the contents well stirred and the mixture allowed to set. A flat piece of stick should be used for transferring the bait from the tin to the rats' burrows, care being taken that the mixture is not touched by hand. The baits should be dropped, in pieces the size of a hazel-nut, in the rats' burrows, all burrows being treated at the one time. Barium Carbonate can be obtained from any chemist.

It should be noted that when using poisoned baits the greatest care should be exercised, particularly on farms, so that poultry and other live stock cannot gain access to the baits which are laid down. The most suitable method of laying down the baits is to place them at night in the rats' burrows, which should then be covered with a slate or board. The burrows should be inspected early the following morning, when any baits which have not been consumed by the rats should be removed. The laying down of poisoned baits should be carried out for several nights in succession until no signs of rats are apparent.

Trapping may also be employed for the extermination of rats with successful results, and where it is desired to use traps instead of poisoned baits the following mixture has been found very useful in attracting the rats :

1 lb. of flour,
3 ounces of treacle.
6 drops of caraway seed oil.

The ingredients should be thoroughly mixed and small portions placed in the traps as bait.

If premises are to be kept clear of rats, it is essential that a continual watch be kept for their presence, and control measures adopted immediately they are noticed. The adoption of spasmodic attempts to control infestations, while they may reduce the numbers for a time, will not completely exterminate the pest.

THE SPAHLINGER EXPERIMENTS.

During the last few years the name Spahlinger has figured prominently in the public Press, and most people knew in a more or less vague manner that this distinguished research worker was engaged in the fight against tuberculosis. The Government of Northern Ireland has

been keenly interested in the work of this investigator, and in view of information placed at its disposal by Sir Lynden Macassey, K.B.E., K.C., it was decided that an official experiment with the Spahlinger vaccine, under the supervision of its Veterinary Research Officers, should be undertaken. Needless to say, world wide interest has been taken in these experiments, and the report on them which has just been published is ample vindication for the policy of the Government.

Briefly, the nature of the experiments was as follows :—

In the main experiment (referred to in the Report as Group III) eleven animals were vaccinated and seven animals which were not vaccinated served as controls. These animals were the progeny of cows which had passed the tuberculin test, and were reared out-of-doors exclusively on Grade A (t.t.) milk so as to ensure their freedom from tuberculosis. Six months after vaccination, all the animals, both vaccinated and control groups, were injected with a massive dose of tubercle bacilli into the blood circulation via the jugular vein. The dose of tubercle bacilli used was prepared from virulent cultures of tubercle bacilli isolated and grown in Northern Ireland by the Ministry's Veterinary Research Officers. The dose was made up of seven bovine strains—five grown from infected milk, one from a tuberculous lung and one from a tuberculous gland. The weight of tubercle bacilli injected into each animal was 2.5 milligrammes, or roughly about 100 million tubercle bacilli. This test was selected by Mr. Spahlinger himself, and the report emphasises that the Ministry's Veterinary Officers would have preferred a less drastic method of testing the immunity or resistance induced by the vaccination.

The reaction of the animals to the test dose of tubercle bacilli is of extreme interest, and those readers who are sufficiently interested to purchase copies of the report will find the temperature graphs very interesting. The vaccinated animals, without exception, experienced an acute feverish attack, and their temperatures showed a marked elevation which persisted for a few days but at the end of a week had returned to normal. The vaccinated animals quickly recovered the condition which they lost as a result of the fever and continued to thrive normally. In marked contrast, the majority of the control animals did not show this initial rise of temperature, but when the vaccinated animals were returning to normal, the control animals commenced to show an acute feverish condition and their temperatures literally soared. This attack of tuberculous fever, for such it was, terminated fatally in five out of seven of the unvaccinated or control animals in an average time of approximately six weeks. Post-mortem examination of these five animals showed acute generalized tuberculosis in each instance. The point which strikes one at once is that five out of seven unvaccinated animals succumbed to an attack of acute tuberculosis, whereas at this time the vaccinated animals, which received an exactly similar dose of tubercle bacilli, appeared to be in

the best of health and thriving. It is of interest to note, too, that all these animals were on a common grazing, shared a common shed, and were fed and watered from the same troughs, so that the vaccinated group had every opportunity of becoming infected from the animals which died.

The subsequent history of the animals is interesting. The two control animals which survived the attack of tuberculous fever returned to normal condition in about nine weeks and continued to thrive. One of these, a heifer, was mated and reared a calf successfully. Both were slaughtered about twenty-six months afterwards and their carcases were passed as fit for human consumption. Evidence of an old-standing, non-progressive type of tuberculosis was found in both, and it is evident that these two animals possessed a very strong natural resistance to tuberculosis. This factor of natural resistance in certain animals has been remarked by other investigators from time to time.

The vaccinated group of animals remained in good health for some fourteen months, when one of them was badly affected with hoose. Symptoms of tuberculous meningitis were shown by this animal, and it became recumbent and died from pneumonia 607 days after being submitted to the test dose. The remaining ten animals in this group remained in good health. The four heifers in the group were mated and reared their calves. All ten animals were slaughtered about two years and three months after being submitted to the test dose, and with one exception their carcases were passed as fit for human consumption. The carcase which was condemned was that of a female, and while it showed fairly extensive evidence of tuberculosis, the disease was not progressive in nature. In the carcases which were passed, the lesions present were definitely of a non-progressive nature.

In view of these facts, one must agree with the conclusions arrived at by the Ministry's Veterinary Research Officers, viz. : " We consider that the injection of the ' New ' Simplified Dead Vaccine, prepared by Mr. H. Spahlinger, conferred a high degree of resistance against a massive intravenous injection of tubercle bacilli."

The other experiments dealt with in the report raise matters of considerable interest to research workers and also to the community at large.

The report is a very comprehensive one, and, in addition to the technical side, a popular account of the experiments is also given. Complete reports of the post-mortem findings are given in the appendices, and temperature graphs and results of tuberculin tests are also included.

Copies of the Report may be had from H.M. Stationery Office, Chichester Street, Belfast, price one shilling and sixpence or by post one shilling and tenpence.

RESULTS OF WARBLE EXPERIMENTS, 1935.

As in previous years these experiments were again carried out this season by the various Agricultural Instructors and Overseers in the different Counties under the auspices of County Committees of Agriculture.

Two different washes were tested, namely, the Polvo-soft soap wash and a wash made from Cooper's Warble Fly Powder. The results have now been tabulated and in the following table a general summary of them is presented :—

	Polvo-soap Wash.		Warble Fly Powder Wash.	
No. of Experimental Centres	40		37	
	Cows.	Other Cattle.	Cows.	Other Cattle.
Total number of beasts examined	266	248	223	283
Total number of beasts infested with warble at time of first dressing	158	193	132	224
Total number of warbles counted in these beasts at time of first dressing	1,470	2,033	1,297	2,452
Average number of warbles per beast examined	5.5	8.2	5.8	8.6
Total number of warbles at time of :—				
Second dressing	913	1,630	960	1,976
Third dressing	618	668	614	732
Fourth dressing	206	169	195	127
Percentage of original total number of warbles killed :—				
(*a*) by 1st dressing	27.4		21.7	
(*b*) by the combined effects of the 1st and 2nd dressings	63.3		64.1	
(*c*) by the combined effects of the 1st, 2nd and 3rd dressings	89.3		91.4	

Records were not kept in all cases of the effects of the fourth dressings but in practically all instances where the cattle were examined about a week following the application of the fourth dressing, few, if any, warbles were found, indicating that both washes when applied, as was done in the experiments, were completely successful in destroying the warbles present in the beasts.

These results are in agreement with those obtained in previous years and prove conclusively that the extermination of the warble pest is a practical possibility through the agency of a suitable wash applied at the correct times.

In the experiments under review the washes were applied on four different occasions at monthly intervals from about the middle of March onwards.

Full particulars of the treatment and of the results of previous experiments are given in Leaflet No. 64, copies of which may be obtained free, on request, from the Ministry.

NEW CROP RYEGRASSES, 1935.

The following germination figures have been obtained at the Ministry's Seed Testing Station from samples of this season's Northern Ireland ryegrasses.

PERENNIAL.

Results from 107 samples show that a growth of 93 to 95 per cent. was obtained more frequently than any other germination figure. Drying in about half the samples examined slightly improved germination.

ITALIAN.

Results from 35 samples show that a growth of 93 to 95 per cent. was obtained more frequently than any other germination figure. Drying in about half the samples examined improved germination by about 3 per cent.

MIXTURE.

Results from 31 samples show that a growth of 87 to 89 per cent. was obtained more frequently than any other germination figure. Drying in about half the samples examined increased germination by about 4 per cent.

With the exception of mixed ryegrasses, the germination figures of which are, as yet, lower than previous years, these preliminary figures indicate that ryegrass seed this year will be of as high quality as that of the past three seasons.

SHEEP SCHEMES.

This is the season for the location of rams and is, therefore, an appropriate time to give a brief account of the Ministry's two sheep breeding schemes which deal respectively with black-face or mountain sheep and with lowland sheep. In the September Report emphasis was placed on the necessity to choose the best possible ram for mating with ewes if the resulting progeny is to be of good quality. The

Ministry's Schemes are designed to give assistance in making the services of superior rams available to breeders.

Under the Black-face Scheme applicants in mountainous districts who have been selected by County Committees of Agriculture are required to procure black-face rams which have been passed by the Ministry's Inspectors as up to the requisite standard, and to keep the animals for at least two years in good condition on their holdings. At the end of that period the rams are usually sold to breeders in other mountainous districts. Provision is made in the scheme for the making of a contribution, up to a maximum of £5, to the purchaser from public funds of one half of the cost price of the ram. Thus, in the case of a ram costing £9, the grant would be £4 10s. 0d., while in the case of a ram costing £10 or more the grant would be £5. The majority of the rams are selected by the Ministry's Inspectors at a sale which is held annually at Belfast in the autumn under the auspices of the Ulster Ram Breeders' Association. This year the sale was held at Messrs. Robson's Mart and 110 rams were required for location under the scheme, chiefly in Counties Antrim, Londonderry and Tyrone. Altogether 141 rams were passed by the Ministry's Inspectors as being up to the requisite standard and with a few exceptions selected applicants were able to procure suitable animals for the season. The remaining applicants elected to wait until the Scottish Sales to be held early in October when the Ministry's Live Stock Inspector will attend to buy high-class rams on their behalf.

The Lowland Sheep Scheme makes provision for the location in lowland districts of approved pure-bred Border Leicester rams with applicants who have been selected by the several County Committees of Agriculture. Premiums are awarded by County Committees for the service by each ram during the season of 30 visiting ewes the property of farmers who are rated occupiers in the County in which the ram is located. The service fee does not exceed 2/– per ewe but in addition a charge of 6d. per week may be made for feeding and caring each ewe during the visit. A premium may be awarded in respect of a ram for a second year on the same conditions as in the first year, provided that the animal is approved by the Ministry and that the owner is again selected by the County Committee. Rams of outstanding merit if changed to a new locality may also stand for a further season. Thirty applicants were selected by the several County Committees of Agricultore to keep rams under the Scheme in the coming season and at the recent sales held by the Ulster Ram Breeders' Association all of these persons succeeded in purchasing suitable sires which have been passed by the Ministry's Inspectors as up to premium standard. Farmers should take advantage where possible of the opportunity of mating their ewes with these high-class rams as the lambs thus produced are likely to be of better quality than if the dams are mated with inferior sires.

THE WHEAT ACT, 1932.

In last month's Report reference was made to the operations of the Wheat Act during the past three cereal years in regard to the United Kingdom as a whole. The purpose of this article is to present some facts and figures illustrating the working of the Act so far as wheat growers in Northern Ireland are concerned.

The acreage devoted to wheat growing in Northern Ireland has fluctuated very considerably within the past hundred years. In 1847, the first year for which statistics are available, the area was 72,423 acres. The acreage rose to 88,089 acres in 1849, but then declined rapidly to 43,773 acres in 1852, subsequently rising steadily to the peak figure of 89,403 acres in 1858. By 1865 the area had again fallen to 36,772 acres, but it rose to 65,022 in 1869. A succession of rises and falls in area, each covering a period of a few yea s, then ensued, the general tendency in the area grown being definitely downward. The smallest acreage under this crop prior to the outbreak of war was 5,690 acres in 1913. In 1918 the area had increased to 22,197 acres—the largest since 1890—but by 1931 the acreage had fallen to 3,035 acres—the smallest area ever returned under wheat in the Six Counties.

The following table gives particulars of the acreage sown and estimated production in respect of the years 1931–1935 inclusive :—

Year.	Acreage sown.	Estimated production	Yield per Statute acre.
	Acres.	cwt.	cwt.
1931	3,035	56,839	18.7
1932	3,260	65,015	19.9
1933	6,158	121,572	19.7
1934	8,676	194,520	22.4
1935	9,067	(not yet available)	

It will be observed that the area under wheat has steadily increased since 1931, and that the yield per acre in 1934 was exceptionally good.

The principal wheat-growing county in Northern Ireland is Down, which has, since 1933, been responsible for over 60 per cent. of the total acreage. Particulars of the acreages under wheat in each county at

the 1st June in each of the past five years are given in the following table :—

County.	1931.	1932.	1933.	1934.	1935.
	acres.	acres.	acres.	acres.	acres.
Antrim	288	342	594	862	774
Armagh	226	278	477	692	679
Down	1,569	1,599	3,817	5,359	5,683
Fermanagh ..	234	199	276	353	330
Londonderry ..	452	465	574	839	1,070
Tyrone	266	377	420	571	531
Totals ..	3,035	3,260	6,158	8,676	9,067

In order that farmers may be able to claim deficiency payments under the Wheat Act in respect of all wheat of millable quality sold by them they must be registered with the Wheat Commission. The numbers of growers in Northern Ireland registered for each of the cereal years 1932-33, 1933-34 and 1934-35 were as follows :—

County.	1932–33.	1933–34.	1934–35.
Antrim	135	277	343
Armagh	183	364	475
Down	734	1,474	1,735
Fermanagh	67	66	21
Londonderry	273	557	737
Tyrone	279	401	429
Totals	1,671	3,139	3,740

The total quantity of wheat in respect of which valid wheat certificates were received by the Wheat Commission and the total amount

of deficiency payments paid to registered growers in each county of Northern Ireland in respect of each of the cereal years 1932–33, 1933–34, and 1934–35 are as follows :—

County.	1932/33.		1933/34.		1934/35.	
	Quantity	Amount.	Quantity	Amount.	Quantity	Amount.
	cwt.	£ s. d.	cwt.	£ s. d.	cwt.	£ s. d.
Antrim	1,805½	400 11 2	6,010	1,459 17 8	14,434½	2,739 10 4
Armagh	1,539	341 8 8	4,753½	1,154 13 3	11,980	2,273 14 1
Down	21,732	4,821 11 8	59,909½	14,552 17 7	120,263	22,824 14 10
Fermanagh ..	—	—	60	14 11 6	—	—
Londonderry ..	2,589½	574 9 1	5,608½	1,362 6 1	13,002	2,467 13 0
Tyrone	1,463½	324 13 3	2,884	700 11 3	5,142	975 17 2
Totals ..	29,129½	6,462 13 10	79,225½	19,244 17 4	164,821½	31,281 9 5
Deficiency Payment per cwt. ..		s. d. 4 5¼		s. d. 4 10.3		s. d. 3 9.55

THE NEW QUOTA PAYMENTS ORDER.

The Wheat Commission has announced that the Minister of Agriculture and Fisheries, on the recommendation of the Commission, has made Orders in pursuance of the powers conferred upon him by the Wheat Act, 1932, altering the amount of the quota payment which every miller and every importer of flour shall be liable to make to the Wheat Commission in respect of each hundredweight of his output of flour, and giving the estimates upon which the new rate of quota payment is based.

The first of these Orders—The Wheat (Anticipated Supply) No. 2 Order, 1935—prescribes the quantity of home-grown millable wheat of their own growing which the Minister anticipates will be sold by registered growers during the 1935–36 cereal year, as 29,200,000 cwt. (approximately 6,489,000 qrs. of 504 lbs.). In the second Order—The Wheat (Quota Payments) No. 2 Order, 1935—it is stated that the Minister estimates that the average price obtainable by registered growers throughout the United Kingdom for home-grown millable wheat sold and to be sold by them in the 1935–36 cereal year, will be 5s. 1d. per cwt. (equivalent to 22s. 10½d. per qr.) at farm and that the price deficit per cwt. of such wheat will be 4s. 11d. This Order also

prescribes 83,000,000 cwt., as the Minister's estimate of the supply of flour for the period 1st August, 1935, to 31st July, 1936.

Since March 17th, 1935, the quota payment which every miller and every importer of flour has been liable to make to the Wheat Commission in respect of each hundredweight of his deliveries of flour, has been 21.6 pence (equivalent to 4s. 6d. per sack of 280 lb.). In the light of the estimates now prescribed the Minister has ordered that the quota payment in respect of deliveries of flour during the period commencing on the 29th September, 1935, shall be 19.2 pence per cwt. (equivalent to 4s. 0d. per sack of 280 lb.).

The new Quota Payments Order came into operation on the 29th September, 1935, and quota payments will accrue due at the new rate in respect of all deliveries of flour taking place on or after that day.

In cases where flour or bread is exported on or after the 29th September, the repayment of quota payment to the exporter will be made by the Wheat Commission at the new rate.

PIGS MARKETING SCHEME (NORTHERN IRELAND), 1933.

ELECTION OF MEMBERS
for the Counties of
Fermanagh, Londonderry and Tyrone.

The Pigs Marketing Scheme (Northern Ireland), 1933, came into operation on 1st October, 1933, and was administered until the 31st March, 1934, by a Board of 14 members appointed by the Minister of Agriculture. The intention of the scheme was, however, that it should be administered by representatives of the interests concerned, and accordingly provision was made for elections to be held at stated intervals, the majority of the members of the Board to be elected by producers registered under the scheme.

The first election was held in February, 1934, when eleven members were elected by registered producers and the remaining three were appointed by the Minister of Agriculture. In order that producers should have the opportunity at regular intervals of electing their representatives to the Board and at the same time to ensure that continuity of policy should be maintained the scheme provided that after the first election members for the three counties of Fermanagh, Londonderry and Tyrone should retire in 1936 and every fourth calendar year thereafter, whilst the members for counties Antrim, Armagh and Down should retire in 1938 and every fourth calendar year thereafter. In effect this means that approximately one half of the elected members of the Board retire every second year and producers in each county have the opportunity every fourth year of electing their representatives.

The second election of members for the counties of Fermanagh, Londonderry and Tyrone will accordingly be held in February of next year, and the procedure which requires to be followed by producers who desire to avail themselves of the right to vote in the election is outlined hereunder :—

1. An election of members for the administrative counties of Fermanagh, Londonderry and Tyrone will be held in February, 1936 ;
2. The number of members to be elected for each county is :—

County	Fermanagh	..	1 member.
,,	Londonderry	..	2 members.
,,	Tyrone	..	2 ,,

3. Only those producers who are registered in accordance with the provisions of the Pigs Marketing Scheme (Northern Ireland), 1933, will be eligible to vote ;
4. In order to qualify as a voter, a producer must be registered by the Pigs Marketing Board (Address, 36 Victoria Square, Belfast), at the 1st November, 1935 ;
5. Producers eligible to vote will be entitled to vote only for the candidate or candidates nominated for the administrative county in which the producer resides ;
6. A producer is defined in the Scheme as " a person who breeds pigs or keeps them for the purpose of breeding from them or selling them in an improved condition."

The procedure to be followed by persons intending to stand for election is also outlined for the benefit of producers.

1. Each candidate for election must be nominated in writing by two registered producers as proposer and seconder and by eight other registered producers as assenting to the nomination. The proposer and seconder and the assenters to the nomination must be registered producers residing within the administrative county for which the candidate is nominated, whose names appear at the 1st November next on the register of producers.

Nomination forms will be available from the Ministry of Agriculture, Stormont, Belfast.

2. Nominations of candidates for election to the Board must be lodged with the Ministry not later than the 20th January, 1936.

Whilst the Ministry is charged with the actual conduct of the election and all matters directly pertaining thereto, the Pigs Marketing Board is responsible for the Register of Producers and, accordingly, producers should communicate with the Board and not with the Ministry regarding any question arising out of the Register.

INCREASE IN TRADING LEVY.

As from the 30th September, 1935 the trading levy, which the Pigs Marketing Board (Northern Ireland) are required by the Ministry to impose upon the sales of pigs by producers to curers or to the Board, was increased by 1/– to the sum of 3/– per pig. As and from that date the sums to be deducted under the Pigs Marketing Scheme from the price of each pig amount to 5/–, made up as follows :—

Trading levy	.. 3/–
Administrative contribution ..	.. 1/–
Compensation levy	.. 1/–

The last-mentioned levy, which is earmarked for the service of a loan raised to pay compensation to curers in respect of losses sustained by them in adhering to the standard price during the latter part of 1933, is expected to lapse at an early date. The administrative contribution is, of course, the source of the monies required to meet the ordinary expenditure of the Board.

DEAD PIG PRICES FOR OCTOBER.

The Pig Industry Council for Northern Ireland have announced that the prices for dead pigs for sale by producers to curers in Northern Ireland in October are as follows :—

GRADED PIG CARCASES.

Weight Class.	Weights.	Thickness of Shoulder Fat in inches.			Price per cwt.		
		Grade A	Grade B	Grade C	Grade A	Grade B	Grade C
I	c.1.1.14 to c.1.2.14	1½ -1⅞	2 -2⅛	2¼ -2⅜	60/2	57/2	54/2
II	c.1.2.15 to c.1.3.14	1⅝ -2	2⅛ -2¼	2⅜ -2½	60/2	57/2	54/2
III	c.1.3.15 to c.2.0.0	1¾ -2⅛	2¼ -2⅜	2⅝ -2¾	57/2	54/2	51/2
IV	c.2.0.1 to c.2.0.14	1⅝ -2⅛	2¼ -2⅝	2¾ -2⅞	51/2	48/2	45/2

The price for partly black pigs between c1.1.14 and c.2.0.14 is 5/– per cwt. below the relevant grade price.

Authorised cuts :—

(*a*) Broken ham (dry, shank and/or shell bone break)—5% of the gross value of the carcase.

(*b*) Broken ham (wet break)—12½% of the gross value of the carcase.

(*c*) Shoulder-stuck carcases—3/– per shoulder affected.

The gross value of a carcase is the product of the dead weight and the relevant Grade or other price per cwt.

Where a pig carcase weighing between c.1.1.14 and c.2.0.14 is diseased and the fact could not reasonably have been known to the producer at the time of slaughter the full Grade price applies where the carcase can be graded. Where such a pig carcase cannot be graded because it is wholly condemned it shall be paid for at Grade B price.

UNGRADED PIG CARCASES.

Code Mark.	Weights.	Defects.	Price per cwt. according to weight class.
UL	c.1.1.14 to c.2.0.14	Under Grade A measurements	6/– below relevant Grade B price
UF	c.1.1.14 to c.2.0.14	Over Grade C measurements	6/– below relevant Grade B price

The foregoing prices do not apply in the case of (a) wholly black pigs, boars, rigs or stags, sucked sows, and pig carcases weighing under c.1.1.14 or over c.2.0.14, and (b) pigs visibly diagnosable as diseased before slaughter and subsequently condemned; emaciated or screw pigs; smelling pigs with definite indications of putrefaction and pigs badly abused or damaged before being delivered by the producer to the curer.

LIVE PIG PRICES FOR OCTOBER.

The Pigs Marketing Board have announced that the following prices will apply as from 1st October, 1935, until further notice :—

Live Weights. cwts. qr. lbs.				cwts. qr. lbs.			Grade I. per live cwt.	Grade II. per live cwt.	Grade III. per live cwt.	Unsuitable per live cwt.
Wiltshire.										
1	2	0	to	1	3	14	51/6	49/–	46/6	40/6
Shipping.										
1	3	15	to	2	0	0	47/6	44/9	—	40/6
2	0	1	to	2	1	14	46/–	43/3	—	40/6
2	1	15	to	2	2	7	43/6	41/–	—	38/–
2	2	8	to	2	2	21	40/–	37/6	—	34/–

The above prices are subject to a deduction of 2/6 per pig marketing expenses in addition to the usual levies.

These prices do not apply to live pigs outside the above weights, to live pigs intended for breeding, to live boars, live sucked sows, rigs or stags, injured or diseased pigs, live in-pig gilts, or to live pigs sold (on contracts registered with the Board) to curers in Northern Ireland. All live pigs to which the above prices apply can be sold only to the Board.

Light-Weight pigs—c.1.2.0 to c.1.3.14—will be graded according to their suitability for the Wiltshire Trade, and any of these which are not suitable for one or other of the three grades will be purchased at the price for medium weight pigs unsuitable for shipping, viz., 40/6 per cwt.

Pigs over c.1.3.14 and up to c.2.2.21 will be graded according to their suitability for the shipping trade.

The Pigs Marketing Board also announced that the standard price (for Grade II pigs of dead weight c.1.0.14 to c.1.2.7) which will be payable for live Wiltshire pigs delivered under direct contracts during the month of October is 56/11 per dead cwt.

Grade I pigs of the above weights will be paid a bonus of 4/- per dead cwt (60/11), and Grade III pigs will be subject to a "cut" of 4/- per dead cwt. (52/11).

Grading Statistics.

Table showing the percentages of pig carcases falling within the weight and grade classes indicated during August, 1935.

GRADE A.				GRADE B.				GRADE C.				TOTAL.
1	2	3	4	1	2	3	4	1	2	3	4	
17.3	12.1	1.6	.4	14.8	16.8	3.0	1.5	5.6	9.1	1.5	.5	84.2

UNGRADED CARCASES.						
Under Grade A. measurements. U.L.	Over Grade C. measurements. U.F.	Wholly condemned. U.	Wholly black injured or damaged. U.	Overweights underweights boars, sows. X.	Partly black. Y.	
.1	4.5	.1	2.5	8.5	.1	15.8
					TOTAL	100%

THE BREEDING AND FEEDING OF PIGS.

One of the outstanding features of Northern Ireland agriculture in recent years has been the rapid development of the pig industry. This is exemplified by the fact that since 1932 the pig population has more than doubled and is still increasing. It is, however, useless to increase the quantity unless a high standard of quality is maintained, and this for two reasons. In the first place farmers are now paid on the basis of quality, and in the second place it is obviously in the interest of the producer to please the consumer.

In view of the importance of this aspect of the subject the Ministry considered it advisable to arrange for a lecture on the Breeding and Feeding of Pigs for Carcase Quality to be delivered by Mr. H. R. Davidson, M.A., Harpenden, Herts., on the occasion of the Autumn Show of the Royal Ulster Agricultural Society at Balmoral, Belfast.

Mr. Davidson's name is a household word amongst pig producers. The valuable work that he did for the pig industry while he was managing the herd of pigs on the farm attached to the School of Agriculture at Cambridge, and later when he was building up the pig husbandry department of the Duthie Experimental Farm at Aberdeen, is well known.

For some years, Mr. Davidson has been running his own pig farm and as the name of his herd, namely the Utility Herd, implies, he has aimed at breeding the type of pig which will give the ideal carcase from the consumers' point of view. The fact that his name often appears in the prize lists of the bacon carcase competitions held at the Smithfield Show is evidence of the success of his endeavours. Apart from his scientific and practical experience in this country, Mr. Davidson has an intimate knowledge of the bacon industry in Denmark and on the continent, and few men are better qualified to speak on the problems which are interesting our pig producers at the present time.

The lecture was attended by upwards of 200 farmers who evinced a keen interest in Mr. Davidson's remarks. With the kind co-operation of the British Broadcasting Corporation Mr. Davidson was also able to supplement his lecture by a broadcast talk from Belfast which was intended to reach those farmers interested in the breeding and rearing of pigs who were unable to be present at the lecture.

THE MILK AND MILK PRODUCTS ACT (NORTHERN IRELAND), 1934.

ELECTION OF PRODUCERS' AND DISTRIBUTORS' MEMBERS TO THE JOINT MILK COUNCIL.

The second election of members to the Joint Milk Council, established under Section 5 (1) of the Milk and Milk Products Act (Northern Ireland), 1934, will be held in December next. Under Section 5 (2) of the Act the Joint Milk Council is constituted as follows :—

Three members appointed by the Minister of Agriculture, of whom such one as the said Minister may designate shall be Chairman of the Council;

Three members appointed by the Minister of Home Affairs and being representatives of milk consumers ;

Seven members elected, in accordance with the prescribed regulations, by holders of Producers' licences ;

Four members elected, in accordance with the prescribed regulations, by holders of Distributors' licences.

The Producers' and Distributors' representatives on the present Council were elected at the end of October, 1934, and their term of office expires on the 31st December next. Accordingly it will be necessary for elections to be held in order that holders of Producers' and Distributors' licences may determine their representatives on the new Joint Milk Council. The new Council will take office on the 1st January, 1936, and will hold office for a period of two years, *i.e.*, until 31st December, 1937.

The elections will be held in the month of December next and in the case of Producers the electoral areas and the number of persons to be elected for each electoral area will be as follows :—

(1)	The Administrative County of Antrim	2 members.
(2)	The County Borough of Belfast and the Administrative County of Down	2 ,,
(3)	The County Borough of Londonderry and the Administrative County of Londonderry	1 member.
(4)	The Administrative Counties of Armagh, Fermanagh and Tyrone	2 members.

In the case of the election of the four Distributors' representatives the whole of Northern Ireland will be one electoral area.

In order to qualify as a voter Producers and Distributors will require to hold licences under the Milk and Milk Products Act (Northern Ireland), 1934. The Act provides that milk shall not be sold or offered or exposed for sale for the purpose of human consumption unless it is milk of Grade A, Grade B, or Grade C, and that a person shall not sell milk of any of the foregoing descriptions unless he holds a licence being either—

(a) A Producer's licence, that is to say, a licence for the production and sale of milk ; or
(b) A Distributor's licence, that is to say, a licence for the purchase and re-sale of milk, whether by wholesale or retail.

Notice of the date of the holding of the election, of the last day for the receipt of nominations and the manner in which nomination papers may be obtained, will be published in the Press at least fourteen days before the day appointed as the last day for the receipt of nominations.

MILK RECORDING.

Members of milk recording associations as well as farmers who are testing their cows under the Ministry's pure-bred dairy cattle scheme should note that the standards of milk yield and butter-fat required for the entry of all pedigree cows (except those of the British Friesian, Jersey and Kerry breeds) and all non-pedigree cows, in the Ministry's register of dairy cattle have been raised. In future these standards in the case of cows which calve again within 14 months of the date of calving immediately preceding the milking period will be 6,500 lb. of milk and 225 lb. of butter-fat. This does not, however, apply to heifers on their first lactation for which the qualifying standards remain as heretofore, viz. 6,000 lb. of milk and 210 lb. of butter-fat. The standards necessary to qualify for the advanced register have not been altered.

THE CATTLE INDUSTRY (EMERGENCY PROVISIONS) ACTS, 1934 AND 1935.

The latest returns received from the Cattle Committee show that the total amount paid to Northern Ireland cattle owners up to and including 28th September, 1935, amounted to £236,989 15s., and was in respect of 112,242 head of cattle. On the average, therefore, each owner received £2 2s. 3d. per head up to that date.

The statement in respect of payments made from the Cattle Fund during the week ended 28th September records that some 1,761 stores, 767 heifers and 58 cow-heifers, of a total weight of 21,453 cwts., realised a total price of £31,085 2s. The average weight of each animal sold on the live weight basis was 8cwts. 1qr. 5lbs., and the average price per head amounted to £12 or 29/– per cwt.

AGRICULTURAL IMPROVEMENT, UNEMPLOYMENT RELIEF SCHEME.

Under the terms of this Scheme farmers or land-owners (whose holdings do not exceed a valuation of £60) can obtain financial assistance from Government Funds for the carrying out of approved works of the following character :—

(a) Drainage of agricultural land, including hill drainage and such preliminary operations as the quarrying, breaking and cartage of the necessary stones, the removal of trees, hedges, whins, etc. Drains may be constructed with stones, tiles, or in such other recognised manner as will ensure a more or less permanent benefit.
(b) The improvement of ditches and watercourses.
(c) The improvement of river and sea embankments.
(d) Stubbing of whins, fencing and agricultural improvements of a like nature.
(e) Reclamation work.

Financial assistance in respect of any approved works will take the form of a grant not exceeding half the total amount paid in wages to unemployed men engaged specially for the work through the Employment Exchanges with a maximum of £10 per statute acre for drainage work of the nature specified at (a) above. In view of the difficulty, however, experienced by many farmers in carrying out necessary land improvement work even with the assistance of the grant referred to, the Government is also prepared to render further financial assistance for the balance of the cost of the work by granting a loan which must be secured—

(a) by a charge on the holding ; or
(b) by a Promissory Note signed by the borrower and two sureties approved by the Ministry.

Thus, if a farmer carries out an approved work costing £100 for Exchange labour, he would be entitled to a grant of £50 and could borrow the remaining £50, repaying the amount back over a period of five years under the terms of the Minor Land Improvement Scheme.

Farmers intending to take advantage of this financial assistance should write to the Ministry of Agriculture, Loans Branch, Stormont, Belfast, for a copy of the Scheme and a form of application. Promoters of work under the Scheme will be given advice free of charge by an Inspector of the Ministry.

SEASONAL FARM NOTES.

The Land.

Potatoes.—In connection with the lifting and storing of main-crop potatoes, readers are reminded of the advantages of separating the saleable potatoes from the chats and diseased tubers at lifting time, and of the importance of proper storage of the tubers so that undue loss may not occur.

Potatoes which are stored in pits should be well thatched with straw before earthing-up is done so as to ensure that they will turn out in a clean, dry condition when required. Ventilation should also be provided for a time after pitting by leaving a space of from 8 to 10 inches at the apex of the pit and placing an extra layer of straw over this space for a week or two. By this time all danger of heating will have passed, when the extra straw can be removed and the earthing-up of the pit completed.

Potatoes which are stored in houses should not be piled too deeply, as, if this is done, heating and rotting may occur and loss result. It is a good plan to leave the doors of the houses in which the potatoes are stored, open during the day-time, so that air may circulate freely throughout the house and provide efficient ventilation.

Ground from which potatoes have been dug should be well harrowed and any tubers remaining in the ground lifted and either stored separately or used for feeding purposes.

Mangels.—The lifting and storing of mangels should be completed as soon as possible now before frosts appear. The clamp should be made safe against damage by frost by covering it with a thick layer of rushes, ditch cuttings or old grass.

Grain Crops.—Stacks of grain should be thatched as soon as possible after being built to prevent unnecessary waste. The stacks should be allowed to dry on the outsides before thatching is done.

Winter wheat should be sown as soon as the ground is in a fit state and before severe weather conditions set in. Varieties such as Squarehead's Master and Queen Wilhelmina have given satisfactory results in Northern Ireland and are suitable for a variety of soils. The seed should be dressed before sowing with "Ceresan" or "Agrosan G" at the rate of from 5 to 8 ounces per cwt. of seed as a preventive against smut and other seed-borne diseases.

Pasture.—Grassland should be given special attention at this time. While improper drainage and lack of lime in the soil contribute largely to the poor condition of some pastures, much improvement can be effected by the application of a phosphate manure applied at this

season. See special article on pasture improvement on page 11 of this report.

RATS.—This is a suitable time to adopt measures to control infestations of rats in farm premises during the coming winter. Useful information regarding the control of these pests is given on page 13 of this report.

LIVE STOCK.

CATTLE.—The problem of making up suitable and economical rations for the winter feeding of cattle arises at this time. On most farms the purchase of feeding stuffs constitutes the greatest item of expenditure during the winter feeding period, so that careful judgment in the purchase of feeding stuffs which offer best value for money is necessary, if economies are to be effected.

The purchase of proprietary cakes and meals is still a common practice on many farms. Many of these meal mixtures, although they give satisfactory results, cost considerably more than suitable rations of a similar nature which are made up on the farm.

When the rations are made up on the farm it is generally found necessary, however, to purchase foods rich in protein. A ready means of ascertaining which food supplies protein at the cheapest rate is to divide the percentage of protein in the food into the price per ton at which it is offered. This gives the cost of the unit of protein in the food. A comparison of the prices of protein in the different foods as determined from the average prices of these foods is given in a table on page 52 of this report.

In addition to utilising foods which offer best value for money, home-grown foods such as oats should also be included in suitable proportions in the rations so that the expenditure on purchased foods may be kept as low as possible.

At present prices of feeding stuffs a cheap and satisfactory ration for dairy cows consists of 3 parts crushed oats, 1 part maize meal, 1 part bran and 1 part decorticated earthnut cake or soya bean meal. Further examples of suitable rations for milk cows are given in Leaflet No. 16.

For cattle intended to be fattened during the winter, a suitable ration of concentrates might consist of 2 parts maize meal, 2 parts crushed oats, and 1 part decorticated earthnut cake. Young cattle should be maintained in a forward, thriving condition throughout the winter by feeding a meal mixture such as 3 parts crushed oats and 1 part decorticated earthnut cake or linseed cake, at the rate of from 2 to 3 lb. per head daily, along with an allowance of good hay and

roots. Liberal feeding of young cattle aids in preventing outbreaks of " husk " or " hoose " from developing.

SHEEP.—To obtain good breeding results, rams should be kept in a fit condition by feeding an allowance of concentrates. For this purpose a mixture of equal parts oats, kibbled maize and linseed cake is suitable. The breeding flock should also be changed periodically to different fields so that they may be maintained in a forward, thriving condition.

Outbreaks of fluke in sheep should be guarded against by taking precautionary measures early. The animals should be grazed on dry, well-drained fields and kept off those which have marshy areas on which surface water lies. The use of carbon tetrachloride in the treatment of fluke is now common, and the drug is safe and efficacious, provided certain conditions are fulfilled. The correct dose is one cubic centimetre for each sheep. As bad results may follow the use of too large or too small a dose, only capsules guaranteed to contain the correct amount should be purchased. A guarantee of purity should also be obtained. In the case of sheep receiving hand feeding, this should be discontinued for at least four days prior to the administration of carbon tetrachloride, and grass alone allowed during this period. Further particulars regarding the control of this disease in sheep are given in Leaflet No. 24.

Sheep showing signs of lameness should be examined for footrot at this season. If the trouble is neglected and suppuration allowed to set in, the difficulty of effecting a cure is increased. A simple and effective dressing for footrot is a solution of 1 lb. copper sulphate (" bluestone ") in 1 gallon of water, which should be applied after the horn part of the hoof has been well pared with a sharp knife. In severe cases it is advisable to trim the foot thoroughly and then to apply a dressing prepared by mixing together 1 oz. powdered copper sulphate, 1 oz. turpentine and ½ lb. lard, after which the foot should be bandaged. For further particulars read Leaflet No. 63.

PIGS.—The utilisation of refuse potatoes in pig rations should be considered at this time. For pig feeding purposes the potatoes should be boiled, and provided they are used in the correct proportions along with a suitable meal mixture, satisfactory results will be obtained. Examples of suitable meal mixtures for use along with potatoes are given in Leaflet No. 35.

The value of separated milk and buttermilk for pig feeding purposes may again be stressed. The use of milk reduces the cost of fattening by making it unnecessary to include expensive protein-rich foods in the ration, and, further, as milk is rich in mineral matter, its use also obviates the necessity to use additional mineral supplements. The allowance of separated milk or of buttermilk should **not** be less than

1 quart per pig daily, except during the last few weeks before slaughtering, when the allowance may be reduced by half. During the early stages of fattening, and particularly if potatoes form part of the ration, the allowance of milk should be at least 3 pints per pig daily.

Garden and Orchard.

Carrots and beetroots should be lifted now. The leaves of the beetroots should be removed by twisting instead of by cutting them off, and care taken not to injure the roots in any way. The roots should be stored between layers of sand or dry soil in a cool and moderately dry place. Parsnips may also be lifted now and stored in a similar manner to carrots and beetroots, or they may be left in the ground and small quantities lifted as required.

The digging and storing of main-crop potatoes should be completed as soon as possible. If the tubers are being stored in a house, care should be taken to see that it is well ventilated and at the same time frost-proof. The " seed " for next year should be selected at digging time and placed in sprouting boxes.

As ground becomes vacant it should be dug or trenched and manured as required. Fallen leaves, annual weeds and other soft (not woody) rubbish should be added to the compost heap.

The picking and storing of apples and pears should be completed as soon as possible. Only sound fruit should be stored. Those showing any blemishes should be kept separately and disposed of without delay. The article in last month's Report on the Harvesting of Apples should be consulted for further particulars.

Supplies of fruit trees and bushes should be ordered from nurserymen now. By placing orders early instead of waiting until the planting season is far advanced, the chances of obtaining a good selection are greatly increased. Provided the ground is reasonably dry, planting may be carried out from now onwards. Notes regarding planting, together with a list of the varieties of the different fruits recommended, are given in Leaflet No. 15.

Poultry.

Profits from poultry-keeping depend largely on the egg production obtained from now onwards during the winter months, when prices are highest. Every effort should, therefore, be made to encourage production now in the laying flock.

Feeding is of primary importance in obtaining high production and, at this season when the days are shortening and the time available for feeding is consequently lessened, the conditions of management and

the system of feeding should be such as shall encourage food consumption. A hopper of dry mash should be available for the birds at all times, and, in addition, a daily feed of mash, wet with separated milk if available, should be given. A feed of grain, consisting of 2 parts cracked maize, 1 part oats and 1 part wheat should also be supplied before the birds go to roost.

The feeding of excessive amounts of forcing foods, such as those containing a high proportion of fish meal or meat meal, in an effort to promote egg production, should, however, be avoided. Undue forcing of the birds may undermine their stamina and health and may result in a high mortality. Encouragement of egg production without loss of body weight in the birds should be the aim of the poultry keeper.

Particulars regarding suitable feeding of laying birds are given in Leaflet No. 3, while Leaflet No. 46 contains useful information relating to winter-egg production.

Comfortable housing accommodation is also essential to successful winter-egg production. The houses should be well lighted, well ventilated, but free from draughts and capable of providing ample accommodation for the flock during cold, wet days when it is advisable to keep the birds indoors.

The periodical application to the interior of the house, of limewash, to which a small quantity of paraffin oil has been added, will be found to have a beneficial effect upon the general health of the birds, besides brightening up the house. The litter should be changed frequently in the house and a little grain scattered in it daily, so that the birds are encouraged to scratch through it freely. Damp, soiled litter and overcrowded houses are predisposing causes of outbreaks of colds and other ailments in the flock. See notes on colds in poultry on page 38.

The management and feeding of the breeding stock require careful attention from now onwards. The birds should be given every opportunity of building up reserves of bodily vigour, and, to this end, free range on fresh pasture is the first essential. Plenty of fresh, green food, a daily feed of a mixture of oats and cracked maize, and the addition of a little cod-liver oil to the mash, are valuable aids in bringing the birds into good breeding condition. Neglect of the breeding birds at this season may lead to trouble such as " dead-in-shell " and weakly chicks at hatching time. See page 40 for further notes.

If not already done, arrangements should be made to have the breeding stock blood-tested for the elimination of " carriers " of bacillary white diarrhoea disease. Success in chicken rearing can not be obtained unless blood-tested, disease-free parent stock are used. " Carriers " of the disease should be sold off immediately they are detected. The fees for blood-testing have been reduced this season, and all poultry keepers who intend producing eggs for hatching are

strongly advised to make application without delay to the local Poultry Instructor to have this work carried out, if this has not already been done.

Turkeys intended for the Christmas market should be fed more liberally from this time onwards. Two feeds of mash, wet with separated milk or buttermilk, if available, should be given daily, while a supply of grain should be fed in the evening just before the birds go to roost. Further information regarding the fattening of turkeys is given in Leaflet No. 37. Turkeys intended for breeding, or for sale for breeding purposes, should be selected now and kept apart from the fattening flock. The feeding of the former should be such as will maintain them in a hard, fit condition.

Geese, intended for fattening, should be confined to a small area and fed on a soft mash consisting of maize meal, potatoes and buttermilk or separated milk. The quantity of water supplied should be limited.

ANNOUNCEMENTS AND REMINDERS.

Copies of the leaflets mentioned in Farm Notes can be obtained free from the Ministry, on request.

The egg distribution season at County Poultry Stations begins on the 1st November. Lists giving the names and addresses of station-holders in each county will be available soon and may be had from the Secretary of the County Committee of Agriculture.

Poultry-keepers who intend to trapnest their pullets should arrange to commence this work without delay.

Applications to have their farms registered in the Ministry's List of Accredited Poultry Farms should be sent by poultry keepers to the Ministry without delay.

The double dipping of sheep is again compulsory this autumn. All sheep must be double dipped between the 7th October and the 15th November. The period between the two dippings must not be less than seven, or more than fourteen days.

The centres provisionally selected by County Committees of Agriculture for Winter Agricultural Classes, beginning next November, are:—

County Antrim	Glenoe, Rathmore, Cushendun, Kells.
County Armagh	Keady, Crossmaglen.
County Down	Kircubbin, Boardmills, Newcastle, Dromore.
County Fermanagh ..	Brookeborough, Springfield.
County Londonderry ..	Kilrea, Blackhill.
County Tyrone	Dervaghroy, Doorock, Rouskey, (Donemanagh), Bready, Cloghfin. Tullaran.

Young men in the districts mentioned above are strongly advised to avail of the opportunity of obtaining the free instruction which these classes provide. Full particulars regarding the subjects dealt with are given in Leaflet No. 60. The Secretary of the County Committee of Agriculture or the Agricultural Instructor will give particulars regarding opening dates, etc., on request.

BROADCAST TALKS.

The following talks on poultry-keeping subjects will be given from the Belfast Station of the British Broadcasting Corporation :—

Date.	Title of Talk.	Speaker.
11th October	Breeding Stations and Egg-Laying Tests	J. Getty, A.R.C.Sc.I., Chief Inspector, Ministry of Agriculture
25th October	Poultry Feeding Experiments (The Pullet and the Laying Hen)	J. H. Prentice, B.Sc., B.Agr. Queen's University
8th November	The Purchase and Care of Eggs by Retailers and Consumers	W. H. Dryden, Ministry of Agriculture

ANSWERS TO CORRESPONDENTS.

The following questions of a topical nature are answered this month for the benefit of readers :—

Colds in Poultry.

Question.—Please give some hints regarding the care and treatment of birds affected with colds and also as to how the risk of future trouble from such cause may be minimised.

Answer.—Colds in poultry are common occurrences at this season of the year. The malady is one which is largely the result of incorrect methods of management. In the first place it should be realised that if the general bodily tone of any animal is allowed to decline, that animal is much more prone to contract illness and disease than if the constitutional vigour had been maintained. In the case of poultry, a lowering of the resistance to illnesses oftentimes coincides with the moult—in fact, during the moult a bird is generally very susceptible to illness. Therefore, the poultry keeper must take special precautions during such periods to safeguard the birds against a possible breakdown in health.

Overcrowding of the birds, particularly in houses having a faulty ventilation system, is possibly the commonest cause of colds. Accordingly, the first essential in guarding against outbreaks of colds is the provision of suitable housing having proper ventilation. No system of ventilation will be efficient unless provision is made for the inlet of fresh air and for the escape of foul air. As the foul air is lighter than the fresh air and rises as it gets heated in the house, the outlet should be placed in the ridge of the house, while the inlet for the fresh air should be placed lower down and in such a position as to ensure that there is not a direct draught from it to the outlet which will reach the birds when they are perching. Good ventilation is such that the air in the house is kept pure and sweet while at the same time there are no draughts. A draughty house is not a properly ventilated one, and should not find a place on a well-managed poultry farm.

The condition of the air in the house in the morning is a good guide to the efficiency of the ventilation and also as to the question of overcrowding. If the house is " stuffy " and the air in it smells badly when the door is opened in the morning, the ventilation is defective and possibly there is over-crowding.

The usual allowance of floor space necessary to avoid overcrowding in houses is :—

(1) For slatted floor houses—1 square foot per bird.

(2) For ordinary houses where the birds are on range—2 square feet per bird.

(3) For ordinary houses where the birds are in runs—4 square feet per bird.

For example, a slatted floor house 9 feet long by 7 feet broad will accommodate 63 birds and an ordinary house 10 feet long and 8 feet broad will be fully occupied by 40 birds on free range and by half that number if the birds are kept in a run.

The treatment of birds affected with colds will depend largely on the circumstances on the farm. The main objects should be to maintain the bodily vigour and general health by giving nourishing food in an acceptable form, and to prevent reinfection. Wet mashes given in a slightly warmed state, particularly in the evening, are recommended, and if separated milk is available the birds should receive a quantity daily. Cod liver oil mixed in the meal mixture at the rate of 1 pint to 4 stones of mash is also helpful as is a little linseed meal which should be boiled before incorporating it in the mash. The housing should receive attention and the ventilation improved, if necessary, and draughts prevented.

The ailing birds should be separated from the rest of the flock to prevent, as far as possible, the spread of the trouble to healthy birds. The affected birds should be treated individually twice each day by cleaning the discharges from the nasal organs, after which the beak, and head as far as the eyes, should be dipped in a solution of permanganate of potash in water made by adding permanganate of potash crystals to a bowl of water until it is of a port wine colour. The beak should be kept immersed in the solution for a few seconds.

The administration of copper sulphate (bluestone) and iron sulphate solution has also been found to be beneficial especially in outbreaks of colds of a contagious nature. A stock solution of copper sulphate and iron sulphate should be prepared by dissolving 3 oz. copper sulphate and 1 oz. iron sulphate in ½ gallon water. This solution should be kept in a stoppered bottle and 2 table spoonsful added to each gallon of drinking water. This drinking water should be given in earthenware vessels—never in iron or zinc vessels—as the copper sulphate will corrode the latter and form compounds which may be poisonous to the birds.

It is of the utmost importance to adopt curative measures immediately symptoms of colds appear as the malady, if neglected, will lower the vitality of the birds and render them susceptible to fowl pox or roup which is a highly contagious disease. As previously stated, however, the wise poultry-keeper should aim at preventing outbreaks of colds rather than wait until symptoms appear before adopting the fundamental practices which, apart from being preventives of colds, are part of the duties pertaining to successful poultry keeping.

Feeding Cod Liver Oil to Poultry Breeding Stock.

Question.—Would it be an advantage to add cod liver oil to the ration fed to birds intended for breeding ?

Answer.—The proper feeding of the birds intended for breeding both before and during the time eggs for hatching are produced is one of the fundamental essentials in obtaining good hatches of sturdy, healthy chicks. Experience has shown that in seasons following a very dry summer, when the grass is parched and of low feeding value, more care than usual is necessary in ensuring that the food contains all the constituents in adequate quantity to satisfy the requirements of the birds. The coming breeding season is following a dry summer and the poultry breeder would be well advised to pay particular attention to the feeding of the breeding stock from now onwards.

It has been found that if a deficiency of the food elements known as Vitamins exists, the results, both as regards hatchability of the eggs and rearability of the chickens, will be unsatisfactory. The practical sources of the two Vitamins which are likely to be deficient are yellow maize and cod liver oil respectively. The vitamin supplied by the maize is also supplied by fresh green food, but during the autumn and

winter, when the grass is poor in quantity and quality, and other sources of greens frequently limited, the use of an adequate supply of yellow maize becomes essential. This food, therefore, should always comprise part of the meal mash in the form of maize meal, and part of the grain mixture in the form of cracked or kibbled maize.

Cod liver oil supplies an important vitamin which is an essential to life, health and vigour. If the parent birds do not possess health and vigour themselves they cannot produce eggs with strong, vigorous germs which will develop into strong vigorous chicks. It is a wise policy to start the feeding of the chickens before the eggs from which they hatch are laid. This can be done by feeding the parents properly. It is, therefore, an obvious advantage to include cod liver oil in the food given to the breeding stock. A suitable proportion is 1 pint of oil to 4 stones of mash.

There are several grades of cod liver oil on the market, some of which are quite useless for the purpose in view in the present instance. Only oil which is sold with a guarantee of Vitamin D content should be purchased. Such grades will usually cost more than the poorer grades but they are well worth the extra cost. The oil should first be well mixed with a quantity of bran or maize meal and the treated meal then incorporated thoroughly with the remainder of the mash mixture. The addition of cod liver oil to a mash will increase the cost of the mash by about £1 per ton, but in the case of breeding stock, particularly if the birds are kept in pens, this extra expenditure is a profitable investment.

Beef Subsidy Scheme.

Question.—For what period must an animal be in the ownership of a farmer to enable the farmer to qualify for a subsidy under the Beef Subsidy Scheme ?

Answer.—The Cattle Industry Acts and Regulations do not prescribe any period during which the animal must have been in the ownership of the producer presenting it for certification. A farmer may thus purchase an animal and immediately after purchase present it for certification and duly qualify for a subsidy if the animal conforms with the prescribed standard.

AWARDS OF SCHOLARSHIPS.

The following are the names of the successful candidates for agricultural scholarships which were offered for competition in Northern Ireland recently :—

Queen's University, Belfast.

Scholarships in Agricultural Science valued at £95 per annum for four years awarded by the Ministry and one offered by the University

under the terms of the "Gibson Bequest" to the sons of farmers in Counties Antrim and Down.

H. A. McK. Thompson, Leitrim, Castledawson, County Londonderry, and Greenmount Agricultural College.
J. A. Young, Ballygreenan, Augher, County Tyrone.
E. L. Calvert, Breagh, Portadown, Co. Armagh, and Greenmount Agricultural College.
W. R. Gault, Mosshill, Randalstown, Co. Antrim, and Greenmount Agricultural College.
R. Milligan, Ballyskeagh, Newtownards, Co. Down, and Greenmount Agricultural College. (Gibson Scholar).

University College, Cork.

Scholarships in Creamery Management valued at £98 : 6s. : 0d. awarded by the Ministry.

John Getty, Kirkmoyle, Ballymoney, Co. Antrim, and Greenmount Agricultural College.
John C. C. Hood, Ballyminstra, Ahoghill, County Antrim.

Greenmount Agricultural and Horticultural College, Muckamore, County Antrim.

Scholarships valued at £65 awarded by County Committees of Agriculture.

The following are now in residence at the College as holders of these Scholarships :—

Antrim :
J. C. Hill, Islandranney, Bushmills.
S. Campbell, Drumlee House, Finvoy, Ballymoney.
W. J. Hunter, Ballygawn, Cairncastle.
G. J. Harkness, Fourscore, Glenavy.
J. S. V. McAllister, 14 North Street, Carrickfergus.
A. A. Sherrard, Aughnabrack House, Ligoniel, Belfast.
B. M. Carson, The Beeches, Ferniskey, Kells.
W. G. Hayes, Drumawillian, Ballycastle.
M. Crabbe, Loughmegarry, Ballymena.
A. Reid, Unshinagh, Dunloy.
W. Montgomery, Glenwherry, Ballymena.
W. McKee, Woodbrook Cottage, Templepatrick.
J. O'Neill, Oldstone, Muckamore.

Armagh :
F. Shannon, Palace Farm, Armagh.
T. L. Johnston, 1, Abbey Villas, Armagh.
V. J. O'Neill, City Mills House, Armagh.
J. McParland, Ballard, Lislea.

Down :
R. Gamble, Ballyminetra, Bangor.
W. R. Rutherford, 147 Belmont Road, Strandtown, Belfast (Horticulture).
J. J. Murphy, The Glen, Mullaghmore, Hilltown.
D. J. Cowan, Drumantine, Poyntzpass.
H. G. Montgomery, 20 Shandon Park, Knock, Belfast.
G. A. Chancellor, Solitude, Dundonald.
J. A. White, Daisybank House, Ballybeen, Dundonald.
F. A. Lyttle, Moss Side, Portaferry.
T. W. Dunn, Conlig, Newtownards.
H. K. Moore, Lough Moronay, Newtownards.
G. B. M. Oliver, 5 Windsor Avenue, Bangor.
R. N. Ferguson, Greengraves, Newtownards.

Fermanagh :
W. J. W. Jordan, Drummee, Brookeborough.
J. A. H. Roberts, Drumcullion, Ballinamallard.

Londonderry :
H. H. Moore, Mettican, Garvagh. (Anne Hall Bequest Scholar).
H. K. Clarke, Tirgoland, Dungiven.
W. A. Anderson, Ballynougher, Castledawson.
J. S. Henry, Greenoge, Station Road, Portstewart. (Horticulture).
W. J. Mawhinney, Toome Road, Bellaghy.

Tyrone :
R. T. Magee, Gallony, Strabane.
W. Smyth, Milltown, Strabane.
T. I. Arthurs, Derraghadoan, Dungannon.
T. S. C. McKee, North-West School, Strabane.
M. A. Kirk, Drumnaspar, Plumbridge, Omagh.

North-West School, Strabane.

Scholarships valued at £7 : 17s. : 6d. awarded by County Committees of Agriculture.

The following pupils are now in residence at the School as holders of these Scholarships :—

Antrim:
Miss E. H. Gaston, Ballinaloob, Knockahollett.
,, E. T. Hayes, Wilmount, Ballycastle.
,, P. Pullin, Main Street, Glenarm.
,, J. Robinson, Beltoy, Glenoe.

Armagh:
Miss M. E. Conlon, Carrig View House, Silverbridge.
,, A. J. Hall, Collone, Collone P.O., Armagh.

Down:

Miss M. R. Bell, Dechomet, Ballyward, Banbridge.
,, K. Braniff, Ardtole, Ardglass.
,, M. F. Corry, Saul, Downpatrick.
,, R. Harrison, Mourne View, Ballynahinch.
,, L. J. McAvoy, Drumadoney, Dromara.

Fermanagh:

Miss M. M. Courtney, Tonitygorman, Magheraveely.
,, C. V. Forster, Tattinbar, Rosslea.
,, A. McManus, Drumanymore, Knockaraven.
,, S. M. Wilson, Coolcrannell, Maguiresbridge.

Londonderry:

Miss A. M. Caldwell, Cloughan, Cloyfin P.O.
,, M. S. Lamberton, Gortinrade, Eglinton.
,, M. M. Wilson, Damhead, Coleraine.

Tyrone:

Miss H. A. Armstrong, Brackey, Sixmilecross.
,, R. G. Colbert, Schoolhouse, Sixmilecross.
,, M. A. Gormley, " The Springs," Mullaghmore, Omagh.
,, E. I. Neilands, Derrygoon, Castlederg.
,, K. E. Rodgers, Clogherney, Beragh.
,, E. A. Rogers, Cullion, Lislap P.O., Omagh.

TRAINING OF GIRLS IN POULTRY-KEEPING, DAIRYING, &c.

The Ministry has two schools, the North West School and the Ulster Dairy School, which provide for the training of girls.

The North West School is situated at Strabane, County Tyrone, and has accommodation for 24 pupils. The courses of instruction are designed to afford a sound practical training in modern economical methods of dairying, poultry-keeping and rural housewifery. Admission is by scholarship given by the County Committees of Agriculture, which includes free tuition, board and residence. Applications for such scholarships should be made to the Secretary of the Committee of Agriculture for the county in which the applicant resides.

The Ulster Dairy School is situated at Loughry, Cookstown, County Tyrone, and has accommodation for 50 pupils. It provides the most up-to-date training in all matters connected with women's sphere in farm life, including poultry-keeping, dairying and rural housewifery. Girls who show special ability are selected for a further period of training with a view to qualifying as Instructors under the Schemes of Agricultural Education. The fees, for the ordinary school course of three terms, are only £3 : 3 : 0 per term.

Prospectuses of both Schools, containing application forms, can be btained free from the Ministry on request.

FORESTRY.

SUPPLY OF TREES TO FARMERS AT REDUCED PRICES.

The season is approaching for the planting of forest trees and farmers are, therefore, reminded that the Ministry's Scheme, under which young forest trees grown in the Ministry's nurseries are supplied at reduced prices, will again be in operation in 1935/36. Applicants should note that not less than 1,000 trees can be supplied in any one lot and not more than two species in one lot. The price will be 30/- per 1,000 plants.

WINNERS OF AWARDS IN THE THIRTEENTH EGG LAYING TEST AT STORMONT.

The above test ended on the 8th September, 1935. The following table gives particulars of the pens of pullets which qualified for the cash awards in the various sections, together with the names and addresses of their owners ; the awards are made on the basis of highest value of eggs laid subject to (a) not more than 300 eggs below first grade being produced by the pen, and (b) at least 960 eggs above 2nd grade being produced by the pen.

Section, Breed, and Award.	Pen No.	Name and Address of Owner.	No. of eggs laid by pen.				Value of Eggs.
			Super grade	1st grade	2nd grade	Total	
Section 1.—White Wyandottes.							
1st (£8)	2	Mrs. R. J. Beck, Cleigh, Corbet, Banbridge, Co. Down.	810	523	50	1,383	£7 0 9
2nd (£6)	14	Mrs. E. Johnston, Craigboy, Donaghadee, Co. Down.	665	620	44	1,329	6 9 9
3rd (£3)	19	Mrs. A. Peel, Oakleigh, Roses Lane Ends, Ballinderry, Co. Antrim.	945	287	10	1,242	6 7 4
4th Equal (£1 15s.)	29	Mrs. J. Warnock, Tower View, Rathgael, Bangor, Co. Down.	821	391	25	1,237	6 6 5
(£1 15s.)	11	Lt.-Col. Galbraith, Clanabogan, Omagh Co. Tyrone	708	486	64	1,258	6 6 5
Section 2—White Leghorns.							
1st (£6)	42	Mr. J. Waugh, Ballyrickard, Kilwaughter, Co. Antrim.	525	734	135	1,394	£6 9 4
2nd (£3)	44	Mr. T. J. McMillan, Crossgar, Co. Down.	312	759	256	1,327	5 14 6
3rd (£2)	40	Mrs. J. Warnock, Tower View, Rathgael, Bangor, Co. Down.	581	495	135	1,211	5 11 0

Section, Breed, and Award.	Pen No.	Name and Address of Owner.	No. of eggs laid by pen.				Value of Eggs.
			Super grade	1st grade	2nd grade	Total	
Section 3—Rhode Island Reds.							
1st (£8)	62	Mrs. J. Warnock Tower View, Rathgael, Bangor, Co. Down.	452	731	289	1,472	£6 11 1
2nd (£6)	58	Mrs. Abernethy, Cherry Hill, Stewartstown, Co. Tyrone.	914	353	36	1,303	6 9 8
3rd (£3)	69	Mrs. M. Shields, Tamanyagan, Park, Co. Derry.	420	833	130	1,383	6 8 5
4th (£2)	56	Mrs. G. Hegan, Spamount, Sherrygroom, Dungannon, Co. Tyrone.	1,037	244	5	1,286	6 7 8
5th (£1 10s.)	60	Mrs. E. Kerr, The Manse, Upper Ballinderry, Co. Antrim	549	670	131	1,350	6 4 10
Section 4.—Any other Pure Breed.							
1st (£6)	80	Mrs. H. W. Merrick, Agivey House, Aghadowey, Co. Londonderry.	736	330	12	1,078	£5 5 7
2nd (£3)	82	Mrs. S. B. Nangle, Ballyeglish, Moneymore, Co. Londonderry. (Both Light Sussex).	404	560	195	1,159	5 3 10
Section 5 (a).—Station-holders' White Wyandottes.							
1st (£6)	93	Mrs. M. McAllister, Turnpike House, Backnamullagh, Dromore, Co. Down.	1,180	56	5	1,241	£6 17 5
2nd (£3)	95	Mrs. R. McCullough, Bruslee, Ballyclare, Co. Antrim.	567	102	102	1,295	6 10 5
3rd (£2)	103	Miss E. L. Wilson, The Hill, Moneycree, Armagh.	444	778	97	1,319	6 3 0
Section 5 (b).—Station-holders' White Leghorns.							
1st (£6)	* 106	Mrs. W. Crawford, Redergan, Beragh, Co. Tyrone.	968	368	44	1,380	£6 16 5
2nd (£3)	112	Mrs. J. Knox, Shanmullagh, Ederney, Co. Fermanagh.	426	672	164	1,262	5 18 7
3rd (£2)	113	Mrs. M. Noble, Killycramph, Lisnaskea, Co. Fermanagh.	799	384	51	1,234	5 16 6

Section, Breed, and Award.	Pen No.	Name and Address of Owner.	No. of eggs laid by pen.				Value of Eggs.
			Super grade	1st grade	2nd grade	Total	
Section 5 (c).—Station-holders' Rhode Island Reds.							
1st (£7)	120	Mrs. H. H. Dickson, Lower Coagh, Coagh, Co. Tyrone.	964	213	234	1,411	£6 15 4
2nd (£4)	126	Mrs. J. B. Lyons, Ballindreen, Coleraine, Co. Londonderry.	816	447	43	1,306	6 12 10
3rd (£2)	130	Miss S. McKee, Ardmillan House, Killinchy, Co. Down.	665	579	63	1,307	6 6 2
4th (£1 10s.)	** 133	Mrs. W. H. Nesbitt, Ballybannon, Annsborough, Co. Down.	471	745	56	1,272	5 18 9

* Purchased by Mr. T. J. McMillan, Crossgar, Co. Down.
** Purchased by Mr. and Mrs. Farr, Ballyginney, Dundrum, Co. Down.

OTHER AWARDS.

Championship Cup.—The Silver Cup offered by the Ministry in respect of the pen laying eggs of the highest value during the period of the test was won by Mrs. R. J. Beck, Cleigh, Corbet, Banbridge, Co. Down. (Pen No. 2, White Wyandottes, 1,383 eggs, value £7 : 0s. : 9d.).

Silver Medal.—The Silver Medal offered by the Ministry in respect of the pullet laying eggs of the highest value during the period of the test was won by Mr. J. C. Stewart, Balloo, Killinchy, Co. Down. (Pullet No. 149, White Wyandotte, Pen 25, Section 1 ; 289 eggs, value £1 : 10s. : 9¼d.).

Bronze Medals.—The Bronze Medals offered by the Ministry in respect of the pullet laying eggs of the highest market value during the period of the test, in each of the sections other than that containing the champion pullet, were won by the following :—

Mr. J. Waugh, Ballyrickard, Kilwaughter, Co. Antrim. (Pullet No. 249, White Leghorn, Pen 42, Section 2 ; 244 eggs, value £1 : 4s. : 5¾d.).

Mrs. J. Warnock, Tower View, Rathgael, Bangor, Co. Down. (Pullet No. 369, Rhode Island Red, Pen 62, Section 3 ; 304 eggs, value £1 : 9s. : 5¼d.).

Mrs. H. W. Merrick, Agivey House, Aghadowey, Co. Londonderry. (Pullet No. 477, Light Sussex, Pen 80, Section 4 ; 253 eggs, value £1 : 5s. : 8½d.).

Mrs. R. McDowell, Glenford, Glenoe, Larne, Co. Antrim. (Pullet No. 571, White Wyandotte, Pen 96, Section 5 (a) ; 262 eggs, value £1 : 9s. : 1¾d.).

Mrs. R. Gillespie, Drumlester, Sixmilecross, Co. Tyrone. (Pullet No. 648, White Leghorn, Pen 108, Section 5 (b) ; 245 eggs, value £1 : 6s. : 1¾d.).

Miss S. McKee, Ardmillen House, Killinchy, Co. Down. (Pullet No. 779, Rhode Island Red, Pen 130, Section 5 (c) ; 242 eggs, value £1 : 7s. : 4d.).

Winter Production Award.—The award of £2 offered by the Ministry in respect of the pen laying super grade and first grade eggs of the highest value during the first four periods (16 weeks) of the test, was won by Mr. R. A. Copeland, Blackskull, Dromore, Co. Down. (Pen No. 6, White Wyandottes).

Awards for Type.—The three special awards of £2 each for pens of the best type of (1) White Wyandottes ; (2) White Leghorns ; and (3) Rhode Island Reds, amongst those which qualified for first class certificates were won by the following :—

White Wyandottes.—Mrs. R. J. Beck, Cleigh, Corbet, Banbridge, Co. Down. (Pen No. 2).

White Leghorns.—Mrs. W. Crawford, Redergan, Beragh, Co. Tyrone. (Pen No. 106).

Rhode Island Reds.—Mrs. G. Hegan, Spamount, Sherrygroom, Dungannon, Co. Tyrone. (Pen No. 56).

Scientific Poultry Breeders' Association's Cup.—The Challenge Cup offered by this Association in respect of the pen laying eggs of the highest value during the winter period, that is, from the commencement of the test to the end of the sixteenth week, was won by Mr. R. A. Copeland, Blackskull, Dromore, Co. Down. (Pen No. 6, White Wyandottes).

Irish Fanciers' Association's Silver Rose Bowl.—The Silver Rose Bowl, known as the " John Waters Perpetual Memorial Challenge Trophy," which is provided by the above Association for competition amongst the members of the Association having birds in the test, was won by Mr. T. J. McMillan, Crossgar, Co. Down. (Pen No. 44, White Leghorns).

Northern Ireland Utility Poultry Society's Medals.—The four Silver Medals provided by this Society and to be awarded in respect of the best pens of White Wyandottes, White Leghorns, Rhode Island Reds, and of any other pure breed, respectively, which are owned by members of the Society, were won by :—

Mrs. E. Johnston, Craigboy, Donaghadee, Co. Down. (Pen No. 14, White Wyandottes).

Mr. T. J. McMillan, Crossgar, Co. Down. (Pen No. 44, White Leghorns).

Mrs. W. H. Nesbitt, Ballybannon, Annsborough, Co. Down. (Pen No. 133, Rhode Island Reds).

Mrs. H. W. Merrick, Agivey House, Aghadowey, Co. Londonderry. (Pen No. 80, Light Sussex).

A detailed report on the test, which will give particulars of all the pens and the names and addresses of winners of Certificates of Merit, is in course of preparation, and copies will be available for distribution at an early date.

COMPARISONS BETWEEN PEDIGREE BREEDING STATION BRED PULLETS AND HOME BRED PULLETS AT STORMONT LAYING TEST, 1934/35.

In the laying test which terminated on the 8th September last there were 98 pullets entered which were bred at the official Pedigree Breeding Station of Northern Ireland. These comprised 34 White Wyandottes, 54 Rhode Island Reds and 10 White Leghorns. With a view to assessing the performance of these birds, comparisons have been made between them and the home-bred birds of the respective breeds which were entered for the Test and the following table gives the chief comparisons of interest :—

Breed.	Where bred.	No. of birds included.	Average total No. of eggs laid per bird.	Average percentage of 2nd grade eggs per bird.	Percentage mortality.	Percentage of copper rings awarded.
White Wyandotte	Breeding Station	34	202.4	14.27	3.0	38.2
White Wyandotte	Home Farms	230	188.2	14.0	9.5	27.8
Rhode Island Red	Breeding Station	54	214.0	5.4	1.85	59.2
Rhode Island Red	Home Farms	246	187.3	16.6	10.9	24.7
White Leghorn	Breeding Station	10	228.8	28.1	10.0	20.0
White Leghorn	Home Farm	158	176.3	17.4	18.9	20.2

These results show—

1. That mortality in all three breeds has been markedly less amongst the station bred birds than amongst those bred on home farms.
2. That total egg production has been higher from the station birds than from those bred at home.

3. That the size of eggs was better from the station bred Rhode Island Reds than from those of the same breed which were bred at home ; that the opposite occurred in the case of the White Leghorns and that with the White Wyandottes there was little difference.
4. That the percentage of copper ring birds was markedly in favour of the station bred birds in the case of the Rhode Island Red breed, that the station bred White Wyandottes also scored higher in this respect than the Wyandottes which were bred at home and that with the White Leghorns there was no significant difference.

The general inference from these comparisons is that on the average the station bred birds were superior to those bred at home and that this superiority was particularly marked in the case of the pullets of the Rhode Island Red breed.

Type Awards.—According to the rules of the test all pens of pullets of the White Wyandotte, White Leghorn and Rhode Island Red breeds respectively, which qualify on egg production for the award of first class certificates of merit are eligible for participation in the type awards. These awards are made on the recommendation of a poultry judge to the pen of each breed which is adjudged to be of the best type.

The following type awards have been recommended :—

White Wyandottes.	First	Pen 2	—Owned by Mrs. Beck, Cleigh, Corbet, Banbridge, Co. Down.
	Reserve	Pen 14	—Owned by Mrs. Johnston, Craigboy, Donaghadee, Co. Down.
Rhode Island Reds.	First	Pen 56	—Owned by Mrs. G. Hegan, Spamount, Sherrygroom, Dungannon, Co. Tyrone.
	Reserve	Pen 70	—Owned by Mrs. Stevenson, Dreemore, Dungannon, Co. Tyrone.
White Leghorns.	First	Pen 106	—Entered by Mrs. Crawford, Redergan, Omagh, Co. Tyrone, and purchased by Mr. T. J. McMillan, Crossgar, Co. Down.
	Reserve	Pen 113	—Owned by Mrs. Noble, Shanmullagh, Ederney, Co. Fermanagh.

The reserve pen of White Wyandottes, and the winning pen and reserve pen of Rhode Island Reds were bred at the breeding station. There was not a complete pen of station bred White Leghorns in the test.

FOURTEENTH EGG LAYING TEST AT STORMONT.

The fourteenth of the series of egg laying tests conducted by the Ministry at Stormont, commenced on the 5th October. The number of entries received for this test was most gratifying, and 152 pens, each of six pullets, were accepted and are now under test. All the suitable accommodation available is filled.

The pens are grouped in Sections as follows :—

Section 1.	White Wyandottes	30 pens.	
Section 2.	White Leghorns.	8 ,,	
Section 3.	Rhode Island Reds.	38 ,,	
Section 4.	Any other pure bred.	14 ,,	11 pens Light Sussex. 1 pen Barred Rocks. 1 ,, Buff Rocks. 1 ,, Welsummers.
Section 5 (a).	Station-holders' White Wyandottes	13 ,,	
Section 5 (b).	Station-holders' White Leghorns.	10 ,,	
Section 5 (c).	Station-holders' Rhode Island Reds	22 ,,	
Section 6.	Poultry Clubs and Young Farmers' Clubs—any pure bred	17 ,,	10 pens Rhode Island Reds. 5 White Wyandottes. 2 White Leghorns.
	Total	152 pens.	

Section 6 is a new one which is provided for the first time in these tests. The good entry received for it indicates its popularity, and it is hoped that it will be of value and interest to the Clubs generally. An encouraging feature is the fact that in most cases the Clubs have made up each entry with birds from six different owners, and it will, accordingly, be possible for a Club to arrange, if desired, a local test between its members, who have birds at the test, in respect of these birds.

The numbers of birds of each breed represented in the entire test are :—

Rhode Island Reds ..	420
White Wyandottes ..	288
White Leghorns ..	120
Light Sussex ..	66
Barred Rocks	6
Buff Rocks	6
Welsummers	6
Total ..	912 birds

If these numbers indicate the comparative popularity of the different breeds at the present time, it is seen that the White Leghorn is markedly on the decline, and that the Rhode Island Red continues to increase in popularity. The latter breed has now, in regard to number of birds entered, taken first place, ousting from that position the White Wyandotte, which, for many years, occupied the foremost place of popularity in these tests.

PRICES OF FEEDING STUFFS.

The following table shows the average retail prices per cwt. of Feeding Stuffs at 1st October, 1935, with comparative figures for the corresponding date in 1934.

	1935.					1934.				
	Price per cwt.	Protein equivalent	Price per unit of protein equivalent	Starch equivalent	Price per unit of starch equivalent	Price per cwt.	Protein equivalent	Price per unit of protein equivalent	Starch equivalent	Price per unit of starch equivalent
STARCHY FOODS—	s. d.		s. d.		s. d.	s. d.		s. d.		s. d.
Maize (whole)	4 10	6.8	14 3	81.5	1 2	6 10	6.8	20 1	81.5	1 8
Maize Meal	5 4	6.8	15 8	81.5	1 4	7 0	6.8	20 7	81.5	1 9
Bran, Red	7 0	10.0	14 0	45.3	3 1	7 9	10.0	15 6	45.3	3 5
Bran, White	8 0	10.0	16 0	45.3	3 7	8 8	10.0	17 4	45.3	3 10
Pollard, Brown	7 4	11.0	13 4	71.2	2 1	7 5	11.0	13 6	71.2	2 1
Pollard, White	8 0	11.0	14 7	71.2	2 3	8 6	11.0	15 5	71.2	2 5
Barley Meal	7 1	6.2	22 10	69.7	2 1	9 0	6.2	29 0	69.7	2 7
Oats	7 0	7.6	18 5	60.0	2 4	5 5	7.6	14 3	60.0	1 10
Wheat (whole)	6 6	9.6	13 7	72.0	1 10	—	—	—	—	—
PROTEIN FOODS—										
Linseed Cake, home-made ..	10 3	25.0	8 2	71.8	2 10	10 10	25.0	8 8	71.8	3 0
Linseed Cake, foreign	9 2	25.0	7 4	71.8	2 7	9 11	25.0	7 11	71.8	2 9
Linseed Cake Meal	16 11	25.0	13 6	72.8	4 8	10 2	25.0	8 2	72.8	2 10
Cotton Cake, decorticated ..	8 6	35.0	4 10	71.2	2 5	9 1	35.0	5 2	71.2	2 7
Cotton Cake, undecorticated ..	6 3	17.0	7 4	39.2	3 2	6 9	17.0	8 0	39.2	3 5
Earth Nut Cake, decorticated ..	8 5	41.0	4 1	73.0	2 4	8 8	41.0	4 3	73.0	2 4
Earth Nut Cake, undecorticated ..	7 0	27.0	5 2	57.0	2 6	—	—	—	—	—
Soya Bean Meal, (extracted) ..	8 6	38.0	4 6	64.0	2 8	9 0	38.0	4 9	64.0	2 10
Bean Meal	8 0	20.0	8 0	66.0	2 5	8 6	20.0	8 6	66.0	2 7
Fish Meal (60% protein)	16 6	53.0	6 3	58.9	5 7	16 10	53.0	6 4	58.9	5 9
Meat and Bone Meal (40% Protein)	9 9	36.2	5 5	44.0	4 5	10 0	36.2	5 6	44.0	3 9
Meat and Bone Meal (60% protein)	13 9	54.9	5 0	61.3	4 6	14 6	54.9	5 3	61.3	4 9
OTHER FEEDING STUFFS—										
Linseed, whole	14 7	19.0	15 4	119.2	2 5	15 10	19.0	16 8	119.2	2 8
Palm Nut Cake	7 11	17.0	9 4	70.2	2 3	8 2	17.0	9 7	70.2	2 4
Palm Nut Meal	7 11	17.0	9 4	78.0	2 0	8 1	17.0	9 6	78.0	2 1
Potatoes	2 7	0.6	86 1	18.0	2 10	2 9	0.6	91 8	18.0	3 0
Oat Straw	1 10	0.9	40 9	20.0	1 10	1 7	0.9	35 4	20.0	1 7
Meadow Hay	1 9	4.6	7 7	37.0	0 11	1 8	4.6	7 6	37.0	0 11

One of the objects of the foregoing table is to guide farmers in the economic purchase of feeding stuffs.

Ignoring their mineral content, the valuable constituents of any feeding stuff, whether home-grown or purchased, consist of :—

(1) Carbohydrates—a group of substances which include materials such as starch, sugar, etc. They supply heat or energy to the animal, and the surplus is stored by the animal as fat.

(2) Oil—which also provides heat or energy, the surplus being stored as fat. For this purpose oil is approximately 2½ times as valuable as the carbohydrates, but its presence in the ration in excessive quantities may lower the digestibility of the ration and cause digestive troubles.

(3) Protein—The group of bodies termed protein or albuminoids contain nitrogen. Protein is the only ingredient of a feeding stuff which can produce flesh or muscle and hence its special importance.

All animals require a certain amount of each of the above constituents, but the relative amounts depend upon the class of stock. Thus, for example, a two-year-old fattening bullock requires a relatively small amount of protein (flesh forming material). Its ration should consist mainly of foods rich in carbohydrates, i.e., fat producing substances. On the other hand, a dairy cow is producing milk, which is a substance rich in protein, and as the protein, that is flesh forming material in milk, can only be derived from the protein in the food, the ration for the dairy cow must contain considerably more protein than that for the fattening bullock.

There are very wide differences in the composition of feeding stuffs both home grown and purchased. Some, such as oats and maize, are rich in carbohydrates and, therefore, particularly valuable for fattening purposes, whilst others, such as decorticated cotton cake, earthnut cake and linseed cake, are rich in protein, and are chiefly valuable for their flesh and milk-producing properties.

In the following table the composition of some of the more commonly used feeding stuffs is shown :—

PERCENTAGE COMPOSITION.

	Water.	Protein.	Oil.	Carbohydrates.
Turnips (Swede)	88	1	0.2	9
Potatoes	75	2	0.1	21
Oat Straw	14	4	2	37
Meadow Hay	10	10	3	45
Pasture Grass	80	3.5	0.8	10
Cabbage	89	1.5	0.5	8
Fattening Foods—				
Oats	13	9	6	60
Maize Meal	12	10	4	70
Barley Meal	13	12	2	66
Flesh Forming Foods—				
Linseed Cake	11	30	10	35
Decorticated Cotton Cake	9	40	9	26

The farmer frequently asks what is the cheapest feeding stuff to buy. It is, however, often very difficult to give a direct answer. Much depends upon what the feeding stuff is required for, whether for fattening or milk production. Again, maize and oats are essentially fattening foods whilst decorticated cotton cake is a flesh-forming food, and it would be just as futile to use the cost per ton to compare their values as it would be to use the cost per ton to compare the values of, say, sulphate of ammonia and superphosphate.

Foods of similar composition can, however, be compared, and it is possible for the enterprising farmer to effect considerable economies, not only in the use of home grown feeding stuffs, but particularly in the purchase of concentrated feeding stuffs, by studying the market prices.

The starch equivalent figure is a measure of the energy, heat or fat producing value of the feeding stuff, and shows the number of pounds of starch which would be required to give the same heat or energy as 100 lb. of the feeding stuff. For example, the table on page 52 states that the starch equivalent of maize meal is 81½, or, in other words, 100 lb. of maize meal will provide as much heat or energy as 81½ lb. of pure starch.

The protein equivalent figure shows the number of pounds of digestible flesh or muscle producing material in 100 lb. of each of the feeding stuffs listed.

THE RANGES OF RETAIL PRICES OF PHOSPHATIC MANURES IN NORTHERN IRELAND.

	Price per ton.							
Basic Slag (40/42%)	£3	12	6	to	£4	0	0
Gafsa Rock Phosphate ..	£2	10	0	to	£2	16	6
Semsol	£2	17	6	to	£3	7	6
Superphosphate (35%) ..	£3	5	0	to	£3	12	6

Statement showing the Shipments of Live Stock from Northern Ireland Ports during the month ended 30th September, 1935, and the nine months ended 30th September, 1935, and the corresponding figures for 1934.

PORTS OF :—	CATTLE.						SHEEP.				PIGS.			Horses
	Fat	Stores	Milch Cows	Springers	Calves	Total	Fat	Stores	Lambs	Total	Fat	Stores	Total	
Belfast	6,201	10,853	2,352	231	–	19,637	15,241	1	–	15,242	6,352	–	6,352	306
Larne	58	770	2	16	1	847	2,947	5	–	2,952	1,694	42	1,736	42
Londonderry ..	420	6,459	102	87	100	7,168	3,703	–	–	3,703	390	–	390	3
Newry	19	392	23	4	–	438	928	–	–	928	5	–	5	–
Total, Sept., 1935	6,698	18,474	2,479	338	101	28,090	22,819	6	–	22,825	8,441	42	8,483	351
Total, August, 1935	4,372	7,157	2,017	583	135	14,264	–	–	25,332	25,332	7,997	122	8,119	331
Total, Sept., 1934	3,389	15,878	2,207	372	673	22,519	10,534	58	98	10,690	4,122	89	4,211	275
Total Nine months ended 30th Sept., 1935	54,624	148,492	13,308	2,660	15,523	234,607	36,155	6	92,259	128,420	65,091	2,402	67,493	4,445
Total, Nine months ended 30th Sept., 1934	39,734	114,259	12,809	3,051	11,312	181,165	20,946	183	93,455	114,584	50,451	2,968	53,419	4,092

IMPORTS AND EXPORTS.

Table showing the Imports and Exports through Northern Ireland ports of certain Agricultural Products during the month ended 31st August, 1935, and the eight months ended 31st August, 1935, with comparative figures for the corresponding periods in 1934.

(These figures are supplied through the courtesy of the Ministry of Commerce and are subject to revision.)

Commodity.	IMPORTS.				EXPORTS.			
	Month ended 31st August.		Eight months ended 31st August		Month ended 31st August.		Eight months ended 31st August	
	1935	1934	1935	1934	1935	1934	1935	1934
Bacon cwt.	1,815	3,870	21,941	27,560	17,709	14,933	138,647	108,188
Hams ,,	1,333	1,392	6,543	6,110	9,877	8,785	83,721	71,490
Pork ,,	2	4	8	586	1,466	2,615	27,493	21,621
Butter ,,	5,369	10,722	97,963	108,098	900	962	4,153	3,719
Eggs gt. hds.	7,644	6,684	48,652	44,422	265,002	298,710	2,533,443	2,521,104
Oat Products (including Oatmeal) cwt.	1,784	1,658	14,149	19,523	2,106	2,554	55,994	30,095
Potatoes tons	—	—	148	265	4,747	1,655	100,196	97,947
Poultry cwt.	5	19	156	72	6,257	7,021	106,998	104,651
Grass seeds ,,	882	841	34,715	21,107	3,168	2,947	222,415	168,649

During the month of August, 1935, there were 2,857 cwts. of oats imported direct through Northern Ireland ports from abroad, as compared with 985 cwts. during the corresponding month last year.

PRICES OF FAT STOCK.

The following are the average prices per live cwt. of bullocks and heifers, sold at Belfast Auction Marts during each of the four weeks ended 24th September, 1935 :—

Week Ended.	Bullocks.			Heifers.	
	s.	d.		s.	d.
3rd September ..	30	6	..	30	3
10th September ..	30	6	..	30	6
17th September ..	30	3	..	30	9
24th September ..	29	6	..	30	0

Average Prices of Live Stock at Fairs during the month of September, 1935.

Date.	Fair.	Calves (under 9 months.)	Store Cattle.	Fat Cattle (18 months and over).	Springers.		Milch Cows	Store Sheep.		Fat Lambs (under 12 months old).	Young Pigs.
					Cows.	Heifers.		Feeding Lambs (under 12 m'ths old)	Breeding Ewes.		
		Per head £ s.	Per Cwt. Live wgt.	Per cwt. Live wgt.	Per head £ s.	Per head £ s.	Per head £ s.	Per head £. s.	Per head £ s.	Per head £ s.	Per head £ s.
3	Omagh ..	4 10	28/– to 31/–	29/–	17 0	14 10	12 10	*0 15	*1 19	*1 8	– –
4	Londonderry ..	– –	25/– to 31/6	28/6	17 0	14 0	– –	– –	*1 15	– –	1 6
4	Rathfriland ..	5 5	26/– to 30/–	28/–	13 10	12 10	12 10	†0 18 0 12/6	†1 10	*1 5 †1 0	1 7/6
5	Ballymoney ..	5 2/6	29/– to 31/–	28/6	13 0	12 10	12 0	– –	–	– –	1 10
5	Strabane ..	3 10	30/– to 30/6	27/–	15 0	10 0	13 0	– –	–	– –	– –
6	Moy ..	– –	26/– to 32/6	28/–	12 0	11 0	11 10	*1 6	*1 18/6 †1 2/6	– –	– –
9	Irvinestown ..	4 6/9	28/– to 31/–	29/–	16 10	13 0	13 0	– –	‡1 15 *1 16	‡1 7/6 *1 10	1 15
10	Dungiven ..	– –	24/6 to 30/6	29/–	17 0	11 10	– –	†0 13	†1 6	– –	1 6
10	Enniskillen ..	4 0	24/– to 28/–	28/–	16 0	13 0	15 0	‡1 0	‡2 0	‡1 4	1 9
11	Crossgar ..	– –	27/6 to 29/–	–	17 5	14 10	15 0	– –	–	– –	1 12
11	Kilrea ..	3 17/6	25/– to 27/6	25/–	17 0	11 10	15 0	*1 4	–	– –	1 5
13	Ballygawley ..	– –	29/– to 34/6	28/–	15 0	– –	14 0	*1 7	*2 0	– –	1 15
16	Camlough ..	4 0	23/6 to 30/–	29/–	14 10	14 0	12 10	†0 12/6	†1 7/6	*1 6	– –
18	Lisnaskea ..	4 2/3	25/– to 30/6	30/–	14 15	14 10	13 0	– –	–	– –	1 10
19	Ballynahinch ..	– –	28/– to 30/–	–	17 0	15 0	16 0	– –	*2 0	*1 10	1 12/6
21	Moneymore ..	3 13/9	24/6 to 31/6	27/–	11 5	8 15	11 0	– –	*2 0	*1 5	1 8/6
21	Portadown ..	4 5	27/– to 29/–	28/–	18 0	15 0	17 0	– –	–	– –	1 12/6
23	Fintona ..	4 12/6	30/– to 32/–	27/6	16 0	13 10	15 5	*0 15/6	*1 18/6	*1 8/6	1 12/6
26	Antrim ..	4 15	23/– to 30/–	27/–	19 0	16 0	17 0	– –	–	– –	1 12/6
27	Castlederg ..	3 10	29/6 to 30/–	–	15 0	11 15	12 10	*0 15	*1 15	*1 7/6	1 12/6
27	Killylea ..	– –	26/– to 33/–	27/6	15 0	– –	14 0	*1 6/6	*2 0	– –	– –
28	Ballymena ..	5 8/6	21/– to 32/6	–	17 10	18 10	15 10	– –	–	– –	1 15

* Downs and Cross. ‡ Long Wools † Mountain.

Table showing the numbers of Live Stock (1) exposed for sale and (2) sold at fairs in Northern Ireland during the months of September, 1934, and August and September, 1935.

Description of Live Stock.	September, 1934.		August, 1935.		September, 1935.	
	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.	Number exposed for sale.	Number sold.
Store Cattle ..	9,593	7,001	8,736	4,916	9,717	5,781
Fat Cattle ..	1,022	836	1,146	988	1,447	1,269
Dairy Cattle ..	1,589	1,285	1,751	1,294	1,787	1,420
Sheep	3,881	2,530	632	407	3,292	2,350
Lambs	3,829	2,873	4,109	2,965	4,853	3,607
Young Pigs ..	3,891	3,034	3,930	3,315	3,754	3,248

The offerings in nearly all centres at fairs held during the month of September were larger than in the previous month, and trade moved on similar lines. Larger numbers of store cattle experienced a dull trade throughout the month. First quality stock remained in request, as did also prime polly bullocks and heifers suitable for breeding, but for other descriptions trade was slow, and values, on the whole, were easier on the month. Fat cattle also were in larger supply, and whilst there was a fair local demand for beef during September, the numbers were in most instances in excess of requirements and trade and prices showed a slight decline. Dairy cattle were slightly more numerous than in the previous month, and here business was of a brighter nature. Good cows suitable for export were in keen demand, but in general all descriptions of dairy cattle showing quality sold readily at higher prices. There was a large seasonal increase in supplies of sheep and lambs, and trade, in the main, was little changed on the month. Good rams and ewes for breeding and fat lambs were the chief attractions at firm prices, but on the whole recent prices were fairly well maintained. The supply of young pigs was not quite as large as in August, and here again trade was of a keen nature and prices recorded a further advance. Sows for breeding were in fair request at about late rates.

9th October, 1935.

G1759 Wt.822/402 3,500 10/35 R.H.R. Gp.5.

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF AGRICULTURE.

List of Ministry's Leaflets and other Publications.

No. 1. Flax Seed, 1935.
„ 2. Improvement of Farm Poultry.
„ 3. Feeding for Egg Production.
„ 4. Marketing of Eggs.
„ 5. The Dishorning of Calves.
„ 6. The Packing of Apples in Standard Boxes.
„ 7. Potato Variety Trials.
„ 8. Seed Testing for Farmers.
„ 9. The Renovation of Orchards.
„ 10. Fruit Tree Pests—Capsid Bugs.
„ 11. Fruit Tree Pests—Aphides and Apple Sucker.
„ 12. Fruit Tree Pests—Caterpillars.
„ 13. Contagious Abortion in Cattle.
„ 14. Cheese-making on the Farm.
„ 15. Suitable Varieties of Fruit.
„ 16. The Feeding of Dairy Cows.
„ 17. Home Bottling of Fruits and Vegetables
„ 18. Marketing of Dead Poultry.
„ 19. How to Feed Linseed.
„ 20. The Hatching and Rearing of Chickens.
„ 21. The Uses and Advantages of Portable Poultry Houses.
„ 22. Leather-Jacket Grubs.
„ 23. The Handling and Care of Wool.
„ 24. Fluke in Sheep.
„ 25. The Rearing and Management of Young Horses.
„ 26. Ordnance Survey Maps for Farmers
„ 27. How to Keep Eggs Clean.
„ 28. The Construction of a Laying House for Poultry.
„ 29. The Selection and Breeding of Laying Hens.
„ 31. Coccidiosis in Poultry.
„ 32. Roup of Poultry (Fowl Pox).
„ 33. Spraying Calendar for Apple Orchards.
„ 34. The Pruning of Apple Trees.
„ 35. The Fattening of Pigs.
„ 36. Advantages of Milk Recording.
„ 37. The Raising and Fattening of Turkeys.
„ 38. The Destruction of Charlock.
„ 39. The Production of Clean Milk.
„ 40. The Laying Down and Management of Temporary Pastures.
„ 41. Blackleg, Blackquarter or Quarterill.
„ 42. The Purchase of Balanced Rations for Dairy Cows.
No. 43. Tuberculosis in Poultry.
„ 44. Results of Crop Experiments.
„ 45. The Breeding and Rearing of Pigs.
„ 46. Hints for Winter Egg Production.
„ 47. The Care and Management of Sheep.
„ 48. Baby Beef Production.
„ 49. American Gooseberry Mildew.
„ 50. Potato Blight.
„ 51. Butter-making on the Farm.
„ 52. Gapes in Chickens.
„ 54. The Breeding and Rearing of Calves.
„ 55. Destruction of Ragwort or Benweed.
„ 56. Identification of Egg Supplies.
„ 57. How to have Eggs of First Quality.
„ 58. How the Fertilisers and Feeding Stuffs Act benefits the farmer.
„ 59. Bacillary White Diarrhoea.
„ 60. Advantages of Winter Agricultural Classes.
„ 61. The Care and Management of Breeding Bulls.
„ 62. The Production of Timber on the Farm.
„ 63. Sheep—Castration, Docking, Foot-Rot and Care of Feet.
„ 64. The Destruction of Warble Fly Maggots in Cattle.
„ 65. The Packing of Apples in Barrels.
„ 66. Seed Testing Facilities for Traders.
„ 67. The Cultivation of Vegetables.
„ 68. The Cultivation of Strawberries
„ 69. The Construction of Piggeries.
„ 70. Ringworm.
„ 71. The Cultivation of Raspberries.
„ 72. Tree Planting for Shelter and Ornament.
„ 73. The Propagation and Maintenance of Healthy Stocks of Potatoes.
„ 74. New Pure Strains of Flax.
„ 75. Pig Production and the Pigs Marketing Scheme.
„ 76. Acarine (Isle of Wight) Disease of Bees.
„ 77. Licensing of Milk Producers and Distributors.
„ 78. Graded Milk.
„ 79. The Picking and Storing of Apples.
„ 80. Hoose or Husk in Farm Stock.
„ 81. The Construction of Cow Houses.
„ 82. White Scour in Calves.

Any of the above leaflets may be obtained free of charge and post free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

CIRCULARS.

No. 1. Phosphatic Fertilisers.
„ 5. Why Pay a Tax on the Horns of Cattle ?
„ 8. Basic Slag.
„ 9. Smut in Oats.
„ 10. Purchase of Fertilisers and Feeding Stuffs.
„ 11. Fertilisers and Feeding Stuffs Act—General Summary.
„ 12. The treatment of Liver Fluke.
„ 306. Fertilisers and Feeding Stuffs Act, 1926—Revision of Regulations.

MISCELLANEOUS PUBLICATIONS.

Store Cattle.
Reports on Egg-Laying Tests.
Crop Insurance.
List of Growers of Certified Crops of Immune Varieties of Potatoes.
List of Growers of Certified Crops of Non-Immune Varieties of Potatoes.
The Ministry's Monthly Report.
Register of Premium Stallions.
Guide to the Live Stock Breeding Act (Northern Ireland), 1922.
Guide to the Marketing of Fruit Act (Northern Ireland) 1932.

Any of the above publications may be obtained free of charge and post free on application to the Secretary, Ministry of Agriculture, Stormont, Belfast.

The following publications can be obtained from His Majesty's Stationery Office, 80 Chichester Street, Belfast, at the prices stated :—

(1) The Annual Report of the Ministry of Agriculture for Northern Ireland. Price 2/6 net.
(2) Annual Report upon the Agricultural Statistics of Northern Ireland. Price 2/- net.
(3) The Journal of the Ministry of Agriculture for Northern Ireland. Price 2/6 net.
(4) The Agricultural Output of Northern Ireland. 1925. Price 2/6 net.